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DERMATITIS EXFOLIATIVA NEONATORUM, OR RITTER'S DISEASE.

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THE comparative rarity, or, perhaps, it would be better to say the want of recognition of the affection described by Ritter v. Rittershain under the name of dermatitis exfoliativa neonatorum, and the additional fact that no mention of it is found either in dermatological literature, except in a foot-note in the third edition of Duhring's book, or in the many valuable treatises devoted to the diseases of children, which have appeared in America, render a review of what has been written on the subject necessary.

Though first described by Ritter only in 1878, it would possibly be erroneous to speak of it as an affection of the skin unknown before his article; in all probability, it had already been observed, but regarded as some rare or unusual manifestation of pemphigus or other disease, and a search through the literature of the bullous eruptions would undoubtedly reveal many cases properly examples of dermatitis exfoliativa neonatorum. Kaposi[1] claims that it was described by Hervieux, Billard, etc., and it may be granted that it was, but then they confounded it with pemphigus in the same way as C. Boeck,[2] who reported, in 1878, an unquestionable case of Ritter's disease as a rare form of pemphigus

[1] Kaposi: Pathologie u. Therapie der Hautkrank., Wien, 1881.

[2] Boeck: Ein seltener Fall v. Pemphigus neonat. Vierteljahrschft. f. Dermat. u. Syphilis, 1878.

neonatorum. But yet, although it is probable that the affection had already been seen, the credit of establishing its entity belongs entirely to Ritter, who in his article states that he had observed and studied it in the Foundling Asylum at Prague, during the ten years from 1868 to 1878.[1] He had already referred to it in 1868,[2] and again in 1870[3] under different names, but after a careful study of 297 cases, he concluded that dermatitis exfoliativa neonatorum was the most applicable designation for the disease. Of the 297 the majority were males (males 165, females 132), and the percentage of mortality was very high, 48.82 per cent. The appearance of the disease occurred rarely before the end of the first, but more especially between the second and the fifth week of life. The outbreaks varied greatly in the acuteness and in the intensity of the symptoms, and in some cases were preceded by a dry, scaly condition of the skin, which had persisted after the physiological desquamation of the epidermis had taken place—Ritter's prodromal stage.

The inception of the process was shown in the sudden development of a diffuse redness, more usually upon the lower half of the face about the mouth, but this could also occur upon any other portion of the body or might be universal from the very first. From its starting-point, this hyperæmia spread rapidly and continuously or appeared in patches here and there, finally, however, becoming universal in a very short space of time or in a few days. As a rule, the extremities were the last to be affected. The mucous membranes of the mouth and nose participated sometimes in the process, and fissures formed at the corners of the former; the conjunctivæ were usually affected. The color of the skin varied from a light to a dark purple red.

Synchronously with the extension of the hyperæmia, exfoliation of the epidermis began upon the surface first affected. Great variations were presented by this stage. The exfoliation might occur without any evidences of exudation, the epidermis being slightly thickened, wrinkled, dry, and fissured into pieces of all sizes, the edges of which were loosened and which were easily removed by any slight mechanical action, the underlying rete being already covered by a thin layer of new epidermis. Or, upon the red or scarcely reddened surface of the trunk and face an outbreak of small vesicles like those of miliaria crystallina appeared, the exfoliation of the epidermis occurring afterward in the usual way; or again, the horny layer over the intensely red surface was lifted up by fluid accumulation into large, irregularly shaped, flaccid bullæ. After the exfoliation had taken place regeneration followed, at times very rapidly, the extremities requiring somewhat longer to regain their

[1] Ritter v. Rittershain: Die exfoliative Dermatitis jüngerer Säuglingen. Separat abdr. a. d. Cent. Zeitg. f. Kinderhlkde. Leipzig, 1878.

[2] Jahresbericht d. k. böhm Landes-Findelanstalt f. 1868.

[3] Dermatitis erysipelatosa. Oest, Jahrb. f. Pädiatrik, 1870. Bd. I. p. 26.

normal color, but the skin remained for some time scaly and irritable. In those cases in which there was no exudation, a longer time was necessary for the casting off and regeneration of the epidermis, but usually the disease ran its course in from seven to ten days. Relapses were occasionally observed ten to twelve days after the first attack, but were always mild.

In typical cases, the process was unaccompanied by any fever or systemic disturbance, unless some internal complication existed; the general functions were normal and the weight of the baby remained stationary or even increased. Fatal cases resulted either from the intensity of the attack, or from some intercurrent affection, though more usually from some of the sequelæ, furunculosis, etc., which were seldom absent, with consecutive sepsis or gangrene. Ritter regarded the affection as a form of pyæmic infection.

It would have been expected from the accuracy and carefulness of description which Ritter made, that the disease would have received greater recognition and more attention would have been directed toward it. From the number of cases he was able to observe personally, the affection cannot be so extremely rare, but yet it is remarkable how little mention of it is to be found in the dermatological literature of the world since 1878. G. Behrend[1] was the first who considered the subject after the appearance of Ritter's article. He reported the occurrence of seven cases, which he held to be examples of dermatitis exfoliativa neonatorum. Ritter (loc. cit.) had already mentioned his having seen these cases referred to in the *Bohemia*, a newspaper, but, unfortunately, neither he nor Behrend had seem them personally. They had been communicated to the latter in 1868 by Dr. Litten, of Neu-Stettin, Pomerania, who, called to Klaushagen on September 13th of that year, found that all the children born between the beginning of August and that date had suffered from a peculiar bullous affection, which ran a rapid course and from which five of the seven attacked had died. Dr. Litten gave a vivid description of the disease, which he thought was an acute pemphigus foliaceus, and Behrend also, after stating his belief that they were examples of dermatitis exfoliativa of Ritter, concluded that this latter was only an acute manifestation of Cazenave's pemphigus foliaceus. I shall have occasion to return to these cases later when speaking of differential diagnosis.

Bohn[2] states that he has seen a few cases. He believes it to be an acute limited dermatitis, accompanied by more or less exudation and connected with that normal desquamation of the epidermis which takes place during the first period of life. Solely on account of the exudative symptoms, he classes it with pemphigus as a pemphigoid eruption.

[1] Behrend: Vierteljahrschrift f. Dermat. und Syphilis, 1870, H. 2.
[2] Bohn: Gerhardt's Handbuch der Kinderkrankheiten.

Etiologically, he can offer no explanation of its origin, but thinks it may be a local process brought about by some external influence.

Kaposi[1] claims that he has seen many such cases, both in the lying-in department of the Vienna Hospital and also in the Foundling Asylum. He agrees with Ritter that it must be kept separate from pemphigus, notwithstanding that there is some clinical resemblance between them. He does not believe in its pyæmic origin, but thinks that the affection is a result of an increase in the physiological desquamation of the epidermis of the newborn.

Brocq[2] refers to it as a sort of pemphigus, and Weyl,[3] though describing it, advances no opinion in regard to its nature.

Caspary[4] reported, in 1884, a case which he had observed. He also separates the affection from pemphigus and makes a step in advance, in objecting to its being considered in any way as a dermatitis. He argues on the ground of the absence of fever, which could not be the case if the process was an inflammatory one, universal and occurring in babies, who respond so immediately to any slight irritation by an elevation of temperature. He thinks that the disease represents an epidermolysis of unknown nature, with secondary hyperæmia of the cutis, and is inclined to regard it as an acute disturbance of nutrition occurring in those external layers of the skin which do not contain bloodvessels.

These few references constitute the literature of dermatitis exfoliativa neonatorum, it having been either passed over with a bare mention of its existence, or completely ignored by the majority of authors, and from them it can be seen how various are the opinions in regard to its nature and how little progress has been made in elucidating the obscurity in which it is wrapped.

During the last year I have had several cases of Ritter's disease under my care. The clinical history of only two of these, which I was able to observe through their entire course, will, however, be given here. Of the others, one I saw in consultation with another physician, in August of this year. It was a typical example of the dry form of dermatitis exfoliativa (Ritter), but there were a few small vesicles on the mucous membrane of the mouth.

I also treated a most striking case in August, 1887, in Dr. Bulkley's service at the New York Skin and Cancer Hospital, but, unfortunately, saw the little patient only twice, the parents neglecting to bring it after the second visit. I, consequently, do not know what was the result, whether favorable or unfavorable.

[1] Kaposi: Loc. cit.
[2] Brocq: Étude Crit. et clin. de la Dermatite exfoliative generalisée. Paris, 1883.
[3] Weyl: Ziemssen's Handbuch der Hautkrankheiten, 1883.
[4] Caspary: Vortrag gehalten am 19 November, 1883, in Ver. f. wissent. Heilk. in Königsberg. Vierteljahrschrift f. Dermat. in Syphilis, 1884, H. 1 und 2.

Still another case appeared in Dr. Bulkley's service in September, but it was after the disease had run its course and only squamæ were to be seen. The mother's description of the clinical history was, however, unmistakable; the course of the affection had been very rapid—eleven days. The child had suffered from severe gastro-enteritis from the time the redness had disappeared, and was practically moribund when I saw it—in fact, it died a few days after.

Case I.—The first case which came under my care was Kate W., female, age one month, born in this country of parents free from any disease. The mother had had an entirely normal labor. The baby was at birth perfectly healthy, and remained so up to the inception of the present skin affection. She has a brother, four years old, who is and has always been free from cutaneous eruptions.

The mother brought the baby to my clinic at Demilt Dispensary on June 26, 1886, and stated that discrete pustular lesions had begun to appear upon its face about one week before. They had dried up quickly, forming moderately thick yellow crusts. She had not been able to notice any change in the little patient's general condition, it seeming to be perfectly well in every way.

I found, on examination, that a uniform patch of seborrhœal incrustation was situated over the vertex, and that here and there on the face there were a few crusts and new lesions. These presented the characteristics of an ordinary discrete impetiginous eczema, and a salicylated ointment was prescribed. The baby was seen again on July 1st. The crusts and pustules had disappeared, but a diffuse redness had developed the day before upon the chin and neck, extending anteriorly to just below the clavicles, and posteriorly to the spines of the scapulæ. The skin was bright red, and desquamation had already begun on the face. There were no bullæ present nor any evidences of exudation, even when the squamæ were removed. The baby's general condition was still all that could be desired. I did not make at the time any diagnosis, preferring to wait for the further development of the process. The progression of the redness was continuous and quite rapid and by July 5th had become universal, the extremities being the last to be invaded. The mucous membrane of the mouth was not affected, nor were there any fissures around the lips. The desquamation of the epidermis, which had begun on the face, had followed progressively the march of the redness, and the surface was covered with large, thin lamellæ and scales, which came off freely on the slightest rubbing. When the baby was at rest, the body appeared as though covered with a silvery, slightly wrinkled veil, which was fissured in every direction into squamæ of all sizes and shapes, the free edges of which were rolled up and slightly loosened from the underlying surface. On the face and scalp the scales were more adherent, but on the extremities they were very marked, though the redness was not as intense as on the other portions of the body. There was no moisture found beneath any of them, but only a bright red and slightly glazed surface. Under the microscope, the squamæ were found to consist entirely of horny epidermis.

Notwithstanding that the entire skin participated in the process, yet no change in the general condition of the little patient had occurred. Its bowels were normal, it nursed and slept well, and the thermometer

showed no elevation of temperature. The course of the affection and its clinical symptoms being at this time thoroughly marked, I made the diagnosis of dermatitis exfoliativa neonatorum.

The redness and exfoliation persisted until July 15th, on which date the color began fading on the face. It proceeded rapidly and by July 19th had entirely disappeared, except upon the extremities, which remained slightly red for a few days longer. The surface was then pale, but still covered with squamæ and shreds of epidermis. In some places, it had a parchment-like appearance; in others, it was rough, scaly, and irritable. The exfoliation on the extremities had been very marked, the epidermis of the palms and soles coming off almost entire. The conjunctivæ had also become slightly reddened at the end of the second week, but this had disappeared in a few days. The hair and nails of the fingers and toes were not affected. During the entire time, from the first development of the redness to its complete disappearance, a period of three weeks, there had been no elevation of temperature, the general health of the child had been unchanged, and it had not lost in weight.

By August 3d the skin had become normal, with the exception of being still in places a little rough; but, unfortunately, the mother neglected to bring the baby to the clinic after that date or to notify me of any change. I went to her residence, however, on August 24th, and found the child in a pitiable condition.

The mother stated that in the beginning of August—she could not give the exact date—shortly after her last visit to the dispensary, the redness of the skin had returned. The relapse had lasted only a couple of days, however, and was followed by some desquamation, but the child began almost immediately to pine away. At the same time, she had noticed that the conjunctivæ of both eyes were injected, and that there seemed to be photophobia. The redness kept increasing, both corneas became cloudy, and a considerable amount of shreddy matter collected in the inner canthi, requiring frequent removal. Nothing more definite could be obtained in regard to the course of the changes which had occurred in the eyes. On examination I found the baby excessively marasmic, the skin of a dirty grayish-yellow color and covered in places with some dry adherent parchment-like scales. There was great emaciation, but the pulse was good and strong, the temperature 98° F. The bowels were regular and it was said to nurse greedily.

The eyes were found to be in a lamentable condition. The conjunctiva was slightly injected, the cornea opaque, and perforation had taken place a little to the right of the centre of each. The protrusion of the iris through the opening interfered with perfect closure of the eyelids. In view of the marasmus which existed, the child was put upon a thorough tonic treatment and nursed every two hours. Little, of course, could be done for the eyes, beyond applying gentle pressure and cold compresses.

The baby picked up and gained some strength during the next two weeks, so much so, that I directed the mother to bring it to the dispensary, as I desired to have an oculist's opinion and advice in regard to the eyes. My colleague there, Dr. N. J. Hepburn, kindly examined the little patient carefully and has given me the following description of the condition noted by him: "At time of first visit, there was found to be a perforation of both cornea, with prolapse of the irises, perforation being central in each eye, about four millimetres in the right and

two millimetres in the left. The remainder of the cornea was somewhat opaque and soft looking. The conjunctiva of the globe had a bluish blanched appearance, some enlarged and tortuous veins were present, but the arteries were very small and light colored. There was a very slight discharge of mucus mixed with epithelial debris. The appearance of the cornea was that observed after ophthalmia neonatorum, but the absence of vascularity of the ocular conjunctiva was in marked contrast to the usual appearance seen at a corresponding stage of that disease, as was also the character of the secretion. The sclerotic had rather a translucent look as in episcleritis, without, however, the nodular appearance of that affection. It was markedly different from the dead white of the normal eye, or the yellowish-white of the tissue when thickened by inflammatory action."

Naturally, the stage in which the eye changes were when first seen by Dr. Hepburn, rendered it almost impossible for him to give an opinion on the nature of the process, which had brought them about. They were only a result of what had gone on before the case was seen by either of us. Without desiring to commit himself absolutely, he said, however, in conversation, that he would be inclined to regard the eye changes as having resulted from a process similar in nature to the one which had affected the skin.

The further progress of the case was slow, the baby gained a little in strength, but it was brought to me on September 11th with the statement, that on September 9th an oozing of blood from the right eye had begun. On examining the eye, I saw that the protuberant portion of the prolapsed iris was somewhat flattened, and that the hemorrhage came from its ragged edges. I called in Dr. Hepburn and turned the patient over to him, and I am indebted to him for the report of the case while under his charge. Dr. Hepburn writes, "I found a steady oozing of blood taking place from the incarcerated right iris, which it was found impossible to control either by hot water or by styptics, even after removal of the projecting mass of degenerated iris tissue. As a *dernier ressort*, enucleation was proposed, but before it could be performed the patient died." Death occurred on the fifth day after the inception of the hemorrhage. Unfortunately, a post-mortem was refused, and it had also been impossible, during the course of the affection, to obtain a piece of the skin for microscopical examination.

Case II.—The second case of the dermatitis exfoliativa of Ritter, which I was able to observe fully, presented itself to me in August of this year.

R. T., female, the fifth child of Jewish parents, was perfectly well at time of birth and her skin was normal. The mother stated that during the last four or five months of her pregnancy she had suffered from an exceedingly itchy eruption of little blisters upon the extensor surface of the arms and thighs, which had spontaneously disappeared two weeks before labor; this latter was perfectly natural. The description she gave did not allow the nature of the process to be determined with certainty. The father and the brothers and sisters of the baby had always been free from any skin eruption.

The inception of the little patient's affection began at the age of one month, under the form of a diffuse bright redness situated over the buttocks. Thence it spread rapidly over the rest of the body, becoming universal in about five days. No vesicles, bullæ, or symptoms of exuda-

tion were present, nor did any occur during the course of the disease. Progressively with the extension of the turgescence and hyperæmia, the horny epidermis became loosened and exfoliated in large and small lamellæ, the entire surface being covered with the dry silvery scales, which were so easily removable that the mother's lap became covered with them during the act of dressing or undressing the baby. The exfoliation was more marked upon the trunk than upon the rest of the body, but no part of the surface escaped. During the time of progression of the disease and the consecutive exfoliation, the little patient's health remained perfectly normal and there was no elevation of temperature. The bowels, however, became toward the end of the process for a couple of days greenish and slimy, but this condition disappeared rapidly after a few doses of oleum ricini.

The conjunctiva had become a little reddened during the second week and there was a slight discharge of mucus. The exfoliation of the epidermis and the redness persisted for three weeks from the time of the first appearance of the latter. The hyperæmia then began to disappear rapidly and at the end of three days the skin had become pale with only here and there some squamæ and epidermis shreds. The face was the last to regain its normal appearance—the scales upon it being dry, adherent, and parchment-like. The hair and nails were not affected. The baby's general health was perfect in every way and onlya few small furuncles appeared on the body as sequelæ.

The treatment of the case was entirely expectative. Care was taken to see that it was properly nursed, that its bowels remained normal. Externally, it was rubbed with salicylated olive oil, but this was used only toward the end of the disease.

I scarcely think it necessary to discuss at any length the clinical histories of these cases. A reference to Ritter's description of dermatitis exfoliativa neonatorum will show that they agree closely with that affection, notwithstanding that their course was rather slower than the average —one lasting twenty-two days, the other twenty-four. Still, it must be remembered that they were both examples of the dry form unaccompanied by exudation, and Ritter himself states that under these conditions the development of the process, the exfoliation of the skin and its return to the normal, required a somewhat greater length of time.

The afebrile course of the disease and the non-participation of the general system in the process were, perhaps, the most striking features in both cases and all the more surprising, inasmuch as the affection was universal and occurred at an age when every irritation is responded to by an elevation of temperature.

The severe implication of the eyes in the first case is also of great interest. I agree entirely with Dr. Hepburn in his appreciation of the origin of the unfortunate condition which was observed. It appears to me to have been primarily only an exaggerated form of the ocular changes occurring so frequently in Ritter's disease, and which, to a minor degree, was present in all the other cases seen by me. The exfoliation of the epithelial layer of the cornea, which took place, is to me a process

strictly analogous to the one which occurred on the skin. By means of it, the corneal tissue was denuded and exposed to the irritation produced by the movements of the eyelids, dust, etc. That under these conditions perforation resulted is not surprising, aided as they were by the greatly lowered nutrition and recuperative power of the corneal epithelium, caused by the marasmus which had developed. I do not, in consequence, attribute the perforation of the irises directly to the original exfoliative process, but regard it as only accidental and secondary to this latter, which acted as a contributing cause.

The fatality of dermatitis exfoliativa neonatorum is worthy of attention. Of the five cases which I have seen, two recovered, two died, and the fate of one is uncertain. The two deaths cannot be said to have been due directly to the disease, yet I am inclined to regard the gastro-enteritis in the one as a sequela, since it developed immediately upon the subsidence of the cutaneous symptoms, the appearance of the one coinciding with the disappearance of the other. The immediate cause of death in the case seen in 1886 was unquestionably the hemorrhage from the iris, certainly an accidental and unique one. But this, however, must be regarded as depending directly upon the marasmus, which again was, in all probability, dependent upon the dermatitis exfoliativa. So that it is perfectly just to consider this latter as the indirect or contributive cause of death.

The subject of the differential diagnosis between Ritter's disease and those cutaneous affections with which it might be confounded, is not one offering great difficulty, but yet of the very highest importance. I may, consequently, be pardoned, if I lay much stress upon it and enter extensively into its consideration, but the thorough recognition of such a severe and obscure disease of infant life is of the greatest necessity, and the accumulation of observations and facts concerning it especially desirable, since from them deductions of value may be made, and possibly an insight into the true nature of the process be obtained.

Several of the diseases of the skin in which the objective symptoms coincide more or less closely with those of certain forms of Ritter's disease, may, however, be immediately excluded, as the pityriasis rubra of Hebra, an exquisitely chronic affection of adult life, which begins on several places of the body by diffuse redness and desquamation of small branny scales, but requires months, or even one or two years, to become generalized, after which it persists for many years without amelioration and finally results in death.

The dermatitis exfoliativa of Erasmus Wilson is also a disease of adult life, which lasts from four to five months and usually ends in recovery. It is accompanied by severe systemic disturbance, fever and great prostration, falling of the hair, and shedding of the nails of the fingers and the toes.

Both of these are what may be called dry diseases, being unaccompanied by symptoms of exudation, the small pustules, etc., sometimes seen in their course, being only secondary and unconnected with either process; in consequence, they could not be considered in connection with those cases of dermatitis exfoliativa neonatorum in which the formation of bullæ is a prominent symptom.

Erythema neonatorum and erythema infantile can also be immediately disposed of, the one being the diffuse general redness developing in the course of the first twenty-four hours after birth and disappearing without desquamation; the other, that partial or universal hyperæmia of the skin which, in children, so commonly precedes and ushers in an inflammatory or febrile disease.

The affections which come more particularly under consideration, however, are erysipelas, eczema, the various forms of pemphigus, and the exanthemata.

Erysipelas occurring in the newborn is not limited to any particular time after birth; it originates most usually around the mouth or unhealed umbilical wound. It differs from Ritter's disease in its being, as a rule, localized, only exceptionally proceeding over the entire body—erysipelas migrans. In addition, the dense inflammatory swelling of the tissue, the progressive involution of the objective symptoms in proportion to their onward march, and especially the participation from the very first, and to a marked degree, of the general system, as shown by chills, high temperature, prostration, etc., present a picture of a disease bearing no resemblance to Ritter's, and which separates it, without question, from the cases reported by me. Bullæ do, at times, occur also in erysipelas—erysipelas bullosum; but their formation is both preceded and accompanied by the general phenomena already given and, consequently, ought not to render the diagnosis at all doubtful.

Acute eczema in infants, when universal, or partly so, is also accompanied by fever and systemic disturbance; on the cutaneous surface polyform symptoms are found—vesicles, pustules, crusts, patches of weeping, and of red scaly skin being distributed without regularity over the surface. Here and there, where the eruption is not so intense, it can be seen that the redness is not diffuse primarily, but results from the aggregation of small separate lesions. The character of the desquamation is different from that seen in Ritter's disease. The squamæ do not come off easily and in great quantity, are not lamellous and composed of epidermis alone, but are more or less thickened by the dried-up serous exudation, are small and yellowish in color. There is a greater tendency to the formation of crusts. There will also be evidence of itching shown by the movements of the child, whose general systemic condition deteriorates rapidly. During the final changes of an acute eczema the desquamation of the epidermis is more abundant; but even

then, there will be found patches of weeping, a tendency of the disease to remain chronic in places, a slow course and the antecedent clinical history of vesicles, pustules, crusts, etc.

Eczema intertrigo, when it extends from its customary localization—the inguinal region, the axilla, etc.—to the rest of the body, loses the characteristics belonging to it and then presents the same symptoms as already given, those of acute eczema in general. In consequence of this fact, the second case reported here, though beginning upon the buttocks and vulva, a favorite localization for intertrigo, could be and was easily recognized as Ritter's disease, since all those symptoms of eczema, which have been given, were wanting throughout its entire course.

Chronic eczema could scarcely come under consideration here. The squamous form, at any rate, could alone be brought in, but readily recognized, since it is preceded by an acute outbreak, which leaves the skin in places thickened, infiltrated, slightly scaly, with a tendency to acute outbreaks of vesicles or other lesions, and excessively itchy. It does not become universal and its course is slow and chronic, depending upon an acute eruption for its extension.

Ritter himself has stated that his dermatitis exfoliativa was more liable to be confounded with pemphigus than any other affection. That can, however, be the case only when the exfoliation of the epidermis is produced in part by exudation, causing the formation of bullæ, but cannot naturally have any reference to the examples of Ritter's disease, which run their course without any exudative symptoms. Pemphigus means essentially a bullous disease, one in which the bullæ are always present, even though at times imperfectly formed, and for that reason is effectually separated etiologically from dermatitis exfoliativa neonatorum, which occurs also in a dry form and in which the presence of bullous lesions is secondary and not a *sine qua non* of the disease. Naturally, my cases do not come under consideration in making the differential diagnosis between pemphigus and dermatitis exfoliativa, since they were most marked examples of the dry form of that latter disease, but only those accompanied by the development of bullæ are referred to.

Pemphigus vulgaris may be at once omitted, since it runs the same chronic course in children as it does in adults, but there are two forms of the disease to be carefully considered—the pemphigus neonatorum simplex acutus, which has been repeatedly described as occurring endemically and epidemically (Olshausen,[1] Mekus,[2] Ahlfeld,[3] Moldenhauer,[4] and Dohrn,[5] etc.), and pemphigus foliaceus.

The pemphigus simplex acutus, like Ritter's disease, belongs to the first weeks of life, but appears earlier, sometimes in the first few days

[1] Olshausen and Mekus: Archiv f. Gynäk., 1870. [2] Ibid. [3] Ahlfeld: Archiv f. Gynäk., 1874.
[4] Moldenhauer: Ibid., 1874. [5] Dohrn: Ibid., 1876 and 1877.

after birth, but more commonly between the fourth and the eighth and only rarely after the fourteenth day of life. It does not begin with diffuse redness, but with an eruption of bullæ of various sizes, round and oval in shape, which arise from an erythematous uninfiltrated base. These are discrete, situated here and there over the body, healthy skin intervening and after a short existence they either burst or dry up. The bullæ continue appearing, either singly or in crops, for a week or more, but the affection rarely lasts after the first month of life. In severe cases it has been calculated that as much as one-half of the epidermis has been cast off by the bullous process.

In this form of pemphigus, as in Ritter's disease, there is no constitutional disturbance, but the former is usually benign even when epidemic. If, however, the number of lesions has been very great and extensive denudation of the cutis has occurred, fever, insomnia, and digestive disturbances ensue, but a fatal result is usually caused by marasmus.

From the facts just given, it is evident that in pemphigus the bullæ are the essential feature of the disease, whereas, it has already been shown that in the dermatitis of Ritter they are only secondary and not a necessary factor; the extension of the latter over the surface is, moreover, independent of the bullæ, in the former dependent upon their development; and, in addition, the bullæ of Ritter's disease are irregular in shape, not clearly defined or limited, nor separated from each other by intervening portions of healthy skin—that is, having characteristics and peculiarities widely different from the lesions of pemphigus simplex.

Some cases of pemphigus neonatorum acutus run a somewhat different course from the one already given, without, however, approximating any more closely to Ritter's disease. In these, the bullæ are very large from the first, and do not rupture easily. Their fluid contents undermine the epidermis around their peripheries, causing a great increase in their size; they become confluent with others and finally bursting, expose a cutis covered over with a pulpy layer of sodden rete and epidermis shreds and scales. The appearance of the skin in these cases is very much like that presented by a pemphigus foliaceus. (Abegg,[1] Moldenhauer,[2] etc.)

Here I would return to the cases reported by Behrend (*loc. cit.*), which were mentioned in the beginning of this article. Dr. Litten, in his letter to Dr. Behrend, states that the outbreak of the disease began in the first few hours or days after birth, by the formation of bullæ on various portions of the body, but more especially upon the abdomen. They arose from a more or less reddened uninfiltrated base, were flaccid, did not burst, but by undermining the epidermis in their peripheries, they rapidly enlarged to the size of the hand, or even occupied the

[1] Abegg: Ueber Contag. d. Pemph. neonat. acut. Jahrb. f. Kinderheil., 1876.
[2] Moldenhauer, loc. cit.

entire abdomen. The lifting up of the epidermis by the fluid contents of the bullæ progressed over the entire surface in a very short space of time, and finally rupturing, left the body denuded and raw. Death resulted very soon after. Dr. Litten concluded that they were examples of acute pemphigus foliaceus, and he was this far right, that they were cases of the pemphigus simplex acutus resembling the foliaceous form. A comparison of his vivid description with that given by Abegg and others can but be convincing of that fact, and in my opinion Behrend's conclusions, that they were examples of Ritter's disease, and that consequently this latter is only an acute pemphigus foliaceus of Cazenave occurring in infants, is entirely unacceptable and based upon invalid premises.

It would seem almost superfluous to mention the pemphigus foliaceus of Cazenave in connection with dermatitus exfoliativa neonatorum, and I do so only for the sake of completeness. All authors agree in regarding it as a disease of long duration, of great gravity, and accompanied by cachexia. It usually appears as the final stage of a pemphigus vulgaris, though occurring occasionally very early, and it requires months to become generalized. It is evident that there are no features in common between the two, and the same can be said in regard to the pemphigus syphiliticus neonatorum. This latter differs from Ritter's disease in that it is always a bullous affection, the lesions of which are discrete and localized, especially upon the palms and the soles, only a few developing upon the face and body. Under the crusts, which form by the drying up of the bullæ, ulceration takes place and in addition other evidences of syphilis are commonly present—mucous patches in the mouth or at the anus, etc.

The exanthemata alone remain for consideration, but should offer no difficulty, owing to the marked hyperpyrexia and participation of the general system accompanying them, symptoms entirely wanting in Ritter's disease. Besides, in measles the catarrhal symptoms are present, in scarlatina the angina, etc., and in both the redness of the skin is not primarily diffuse, but composed of an aggregation of minute red points. The general course of each, the manner in which desquamation occurs, and the entire clinical history of each, are so entirely different from the dermatitis exfoliativa of the newborn, that it would be impossible to confound them with one another.

The treatment of these cases of Ritter's disease is, as may be imagined, entirely symptomatic. During the period of exfoliation, protection from irritation is advisable. It would be better to wrap the baby in soft cotton rather than in its clothes, and application of an antiseptic ointment or oil should be made over the entire body. This will aid in preventing the development of furuncles, etc., as sequelæ. Baths of a decoction of white-oak bark are also beneficial. Of greater importance

however, is the general hygiene of the little patient. It should be nursed regularly, and its bowels attended to properly. Should any internal complication arise, it should be treated appropriately. Furuncles or phlegmonous infiltrations occurring as sequelæ should be opened with the knife as early as possible and dressed antiseptically, or, if in the case of furuncles this is objected to, a twenty-five to fifty per cent. ichthyol ointment will be of great service and decidedly beneficial.

It is time now to consider the nature and origin of this obscure cutaneous affection of the newborn, but, unfortunately, there is very little to be said which is satisfactory. It is true that an explanation has been sought for it by each observer, with the result, however, that each has regarded the process as due to a different cause, and has seen in the phenomena attending its development and its course totally opposite pathological processes. Each of these theories is, nevertheless, open to contest, and while offering a possible explanation, yet on examination is found to leave the disease as completely wrapped in obscurity as before.

Ritter's idea of his dermatitis exfoliativa was that it represented a form of pyæmia of the newborn. To judge by my cases, however, and by the general features pertaining to the disease, there seem to me to be insurmountable objections to this view. It is impossible to imagine a pyæmic process without there having been a purulent focus as a starting-point, or one which, being universal, remains localized in the horny layer of the skin, or which running an acute course is unaccompanied by febrile movement, and yet, if this dermatitis exfoliativa is accepted as pyæmic in nature, all these factors have to be regarded as unnecessary and unimportant. Ritter advanced in support of his pyæmic theory the furunculosis and phlegmonous processes which occurred as sequelæ, yet it is perfectly apparent to-day that they are only secondary and in reality unconnected with the original cutaneous affection. The laying bare of the cutis through the exfoliation of its epidermis, or on mucous surfaces of the epithelium, allows microörganisms of all kinds to obtain easy access to it, and among these may be those pathogenic ones which, lodging in a suitable nidus, cause the inflammatory changes and processes—furuncles, phlegmons, etc. That pyæmia may develop from these secondarily and in consequence of the formation of pus is perfectly possible, and it seems to me to be the only way in which pyæmia can arise in dermatitis exfoliativa neonatorum and cause those changes which Ritter found on the post-mortem table and which he ascribed to a primary pyæmic infection.

Bohn's theory (*loc. cit.*) that the disease is a dermatitis is, I think, disposed of by Caspary (*loc. cit.*). That it is connected with (Bohn), or only represents, a great increase (Kaposi, *loc. cit.*) in the physiological desquamation of the epidermis of the newborn, is also unsatisfactory.

It might be applicable to those cases occurring very early after birth, but how could it explain those developing at the age of one month or later—that is, some time after that natural process had ceased? Besides, the mere fact of an increase in desquamation would not necessitate hyperæmia, except secondarily, whereas we find that the exfoliation follows after the redness and proceeds progressively with its extension. Furthermore, it aids us in no way in understanding the implication of the conjunctivæ, of the mucous membranes of the mouth and nose, surfaces not accidentally attacked, but almost regularly affected in Ritter's disease.

Behrend's conclusions (*loc. cit.*) have already been dealt with, so do not need being referred to again.

I must acknowledge that Caspary (*loc. cit.*) has given the most acceptable explanation of any yet advanced, but still it leaves much to be desired. I would agree with him that it is not a dermatitis, but further than that I should not wish to commit myself. Nor would I at present give any theory of my own, since I have not had the opportunity of making any post-mortem examinations, or of studying the skin microscopically, or of seeing a large number of cases, so that any opinion which I should advance would have to be incomplete and speculative. I can but hope that I may some time obtain such material as will permit me to prove that view of dermatitis exfoliativa neonatorum which I have formed, but which I am not as yet ready to acknowledge.

In concluding this description of Ritter's disease and of the two cases which I have been able to observe closely, I would only add, that I hope it will awaken the interest of American practitioners in this peculiar affection of infants, and that it will not be long before it will be readily recognized and so many observations upon it have been made by them, that its elucidation will be a matter of no great difficulty. Of course, until that is done we must remain powerless to prevent or to influence its course in any way, matters of very great importance owing to the high rate of mortality attending its outbreaks.

23 East Thirty-first St., N. Y.

THE ANTI-BACTERIAL ACTION OF IODOFORM.[1]

By J. Amory Jeffries, M.D.,
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For some years iodoform has been in general use as an application for all sorts of sores, ulcers, and wounds, and regarded as a reliable germicide. This quality of iodoform has been questioned—indeed, its

[1] The work for this paper was done in the bacteriological laboratory of the Harvard Medical School according to the rules laid down at the Hygienic Institute at Berlin.

value in surgery denied—by Heyn and Rovsing.[1] Since then, quite a war has been waged in Germany, between the believers in the value of iodoform and their antagonists. To contribute certain points toward the solution of this question is the object of this paper.

The early literature bearing on the subject is meagre to a degree. Mikulicz[2] made two sets of experiments with various nutritive fluids, among them urine and a half and half solution of blood and water. In the first set one portion of fluid was passed through a filter covered with a layer of iodoform, and the other portion through a like filter without iodoform. Both sets of fluid were then placed in a warm chamber, and the changes noted from day to day. The parts passed through the iodoform showed slightly less turbidity and remained longer free from foul odors than the others. The difference was most marked in the blood mixture, which also had the strongest odor of iodoform. In the second set of experiments, Mikulicz simply added iodoform to half of each fluid and then treated as before. He found the parts containing iodoform showed retarded cloudiness, and the blood, even after ten days, was not foul-smelling, but aromatic.

Renno[3] experimented as regards the virulence of pus, from two abscesses, mixed with iodoform; in one case with no result, in the other with an apparent slight diminution in activity.

Lastly, Behring[4] studied the question and came to the following conclusions: Blood is the only healthy tissue that frees iodine from iodoform; iodine is set free by putrefaction and by stinking wounds. Hence, iodoform is inert in a dry wound, except putrefaction occurs.

Looking over the above articles, it at once becomes apparent that they are very inconclusive; nothing else could be expected, as bacteriology did not exist and the causes of suppuration were unknown. Renno's observations are too few for any deductions; Mikulicz's only touch putrefaction as tested by transparency and odor; while Behring, by assumption, classes all pathogenic bacteria as putrefactive. Yet, all point to some action where putrefaction is going on.

We now come to the recent and more extensive literature. Heyn and Rovsing made a series of experiments in the laboratory with pure cultures of staphylococcus pyogenes aureus and a few ill-determined species. All the experiments were made in accordance with the accepted rules, and are free from errors of method. They are divided into the following series: Gelatine tubes inoculated on the surface and then coated with iodoform; gelatine and agar-agar tubes mixed with iodoform

[1] Heyn Chr. und Rovsing Thorkild: Das Iodoform als antisepticum. Fortschr. der med., 1887, Bd. v. No. 2, S. 33–47.

[2] Mikulicz: Langenbeck's Archiv f. klin. Chirurgie, Bd. xxvii. Heft 1, 1881, S. 196–239.

[3] Renno: Centralbl. f. klin. med., 1883, No. 50.

[4] Behring: Ueber Iodoform und Iodoformwirkung. Deutsch. med. Wochenschr., 1882, No. 9 S. 146–148.

and then inoculated; infected ligatures exposed to the action of four per cent. iodoform oil and then planted; iodoform mixed with blood serum and then inoculated; bacteria mixed with dry iodoform and planted; gelatine exposed to an iodoform spray; cultures from an iodoform tampon, and, lastly, the injection of cultures of staphylococcus pyogenes aureus and iodoform into rabbits. In every case the result was the same as in the control experiments conducted the same way, save for the omission of the iodoform. Hence the authors conclude that iodoform is no antiseptic, and is not indicated in surgery as at present applied.

Slightly prior to Heyn and Rovsing, Lübbert[1] published a monograph on staphylococcus pyogenes aureus, one set of experiments in which coincides with and confirms those of Heyn and Rovsing.

Objections at once came in from all sides, but since they are not based on experiments or careful observations, they may be summarized as follows: that laboratory tests are no evidence of what occurs in the body; that in these tests, no iodine, by virtue of which iodoform acts, was set free. Strangely enough, none have pointed out that the experiments only disprove a germicidal action, but do not exclude an inhibitory action on their growth. The injurious effects of crowding are so great, in solid cultures, as soon to cover up any slight inhibitory action of the iodoform.

Next Rovsing,[2] in continuation of his first set of experiments with Heyn, inoculated the anterior chambers of the eyes of three rabbits with a mixture of one part of tubercle rubbed up with five parts of iodoform. In two more rabbits he inoculated one eye with the mixture, and the other with pure tubercle. Tuberculosis developed in every case. By these experiments Rovsing claims that the specific anti-tuberculous action of iodoform is disproved.

Shortly Lübbert[3] returned to the subject, and reported the results of injecting a mixture of staphylococcus pyogenes aureus and iodoform under the skin of rabbits, in pockets under the skin, and in muscle wounds; all gave the same results as the control experiments conducted without iodoform. He also injected iodoform ether, and then the bacterium into the knee-joint, with positive results.

Sattler[4] experimented with silk threads saturated with staphylococcus pyogenes aureus, dusted with iodoform, and then laid on gelatine plates. He found that the growth of the coccus from threads thus treated was decidedly slower than from threads which had not been exposed

[1] Lübbert: Biologische Spaltpilzuntersuchung. Der Staphylokokus pyogenes aureus und der Osteomyelitus kokkus, S. 109, Mit 2 Taf. Würzburg, 1886.

[2] Rovsing: Hat das Iodoform eine antituberculöse Wirkung. Fortschr. der med., 1887, Bd. v No. 9, S. 257-266.

[3] Lübbert: Ueber das Verhalten von Iodoform zum Staphylococcus pyogenes aureus. Fortschr. der med., 1887, Bd. v. No. 11, S. 330-345.

[4] Sattler: Sitzungsbericht d. Deutsch Opthal., 1883, S. 89 u. 98.

to the action of iodoform. No control experiments with inert powders are reported.

About the same time Behring[1] claimed that iodoform only acted, when decomposed, in virtue of acetylen being set free.

Since the work of my own paper was completed, an article by Sänger[2] has come to hand, which contains two claims of importance: first, that the presence of non-growing anthrax bacilli causes gelatine tubes to dissolve; second, that iodoform limits the growth of the anthrax bacillus, and also prevents their taking in a reinoculation.

Thus, while the early authors noted a distinct action on putrefaction, the more recent writers have failed, for the most part, to note any action on the pus-producing bacteria. On the other hand, the mass of opinion from clinicians is in favor of the drug. Here is an antagonism of opinion that should not exist; clinical experience and laboratory experiments should lead to the same result; if not, one or both must be wrong. The evidence from neither one nor the other can be blindly accepted or safely ignored. To discover a way out of the dilemma is the object of this paper.

The first set of experiments was made in the same way as those of Heyn and Rovsing, to verify or disprove them, and, if possible, to discover a plan or suggestion for further experimentation.

A. To five test-tubes of melted gelatine was added five per cent. of iodoform, and the mixture solidified while rotated in ice water, so as to catch the iodoform in suspension. The five were then inoculated with my experiment bacillus. My experiment bacillus was derived from water, is long, rapidly moving, and dissolves gelatine.

2d day. All five tubes growing.

14th day. All five tubes completely dissolved. Fresh tubes inoculated from the above gave a good growth. No difference noted from the pure gelatine cultures made at the same time.

B. Five tubes of gelatine were solidified on the slant and inoculated with a line of staphylococcus pyogenes aureus, after which the whole surface was covered with a layer of iodoform, five millimetres thick.

3d day. Three of the tubes have taken, two show no signs of growth.

10th day. One of the two has now begun to grow.

32d day. The last tube has suddenly begun to grow.

No difference between the three and the control tubes noted; test-cultures gave a pure growth of staphylococcus pyogenes aureus.

Experiments similar to *A* and *B* were made with iodol and salol; all gave prompt results. Later, two tubes of each class were inoculated with staphylococcus pyogenes citreus and albus, staphylococcus citreus flavus and albus, and bacillus pyogenes fœtidus, making twenty tubes in all. All gave prompt positive results.

[1] Behring: Ueber Iodoform und Acetylen. Deutsch. med. Woch., 1887, No. 20.

[2] Sänger: Ueber die Einwirkung des Iodoforms auf das Wachsthum und die Virulenz der Milzbrandbacillen. Deutsch. med. Woch., No. 331, 887, S. 726–728.

C. Three of the tubes from *B*, after the gelatine was all dissolved, were left in a window looking to the south for six weeks. At the end of this time test-tubes were inoculated from them. All gave pure growths of staphylococcus pyogenes aureus. When the cultures were made I also tested for iodine with starch paper, but failed to get any reaction.

D. Five tubes of solidified blood serum were inoculated with staphylococcus pyogenes aureus, and then covered with iodoform. Examination on the tenth day gave a good growth of staphylococcus pyogenes aureus in all.

E. Fifteen tubes of fluid blood serum were divided into sets of five, and had added five per cent. of iodoform, iodol, and salol, respectively; after this all were inoculated with staphylococcus pyogenes aureus.

8th day. Iodoform tubes almost clear, with a few flocculi; salol and iodol tubes a little muddy. Gelatine tubes, inoculated from the serum tubes, showed one of the iodoform and iodol tubes to be contaminated by a small white coccus, and the staphylococcus pyogenes aureus to be active in all. Starch-test for iodine was negative, though all the tubes had stood in the light.

F. A mixture of my experiment bacillus and iodoform, in the proportion of about one to thirty, was made, and allowed to stand for twenty-four hours; the mixture was then planted on gelatine, with a prompt positive result.

Besides the above, I made some two hundred experiments with all sorts of bacteria, gelatine, and five per cent. of iodoform; all gave good growths, though some were retarded, as in the two tubes mentioned in *B*. This retardation I attribute to the mechanical separation of the bacterium from the gelatine. The bacteria could easily be separated from the gelatine when shaking the tubes to distribute the iodoform over the surface, when, thanks to the repellant property of iodoform to water, they would have no access to food for growth. That the bacteria were not killed is shown by their ultimately taking.

As it has been claimed that iodoform only acts in solution, as in iodoform oil, either directly or indirectly, iodine being set free, the following set of experiments was made with milk. Milk was selected on account of its containing fats, albuminoids, sugar, and salts, thus offering opportunity for dissolving the iodoform, and for the formation of derivative products, which might break up the iodoform into active principles.

G. To each of four tubes of sterilized milk, containing five per cent. of iodoform, was added a drop of staphylococcus pyogenes aureus in water. In all the following experiments the bacterium used was suspended in sterile water, and one drop of the water used for each tube, by this means a uniform inoculation was procured.

7th day. Little apparent change, agar-agar tube inoculated from each.

13th day. All the agar-agar tubes contain pure cultures of staphylococcus pyogenes aureus in good development.

H. Two tubes of milk, handled the same way as *G*, with the omission of the iodoform, gave the same results.

I. Five tubes of sterile milk with five per cent. of iodoform were inoculated with water, containing my experiment bacillus.

5th day. Cream normal, below the cream a clearish zone, like soapy water, of fluid, lower three-fourths of milk appears normal; no visible curds.

10th day. Same, except clear zone much larger. Agar-agar tubes inoculated.

14th day. Three of the agar-agar tubes pure, two impure. Milk gives no iodine reaction with starch paper.

J. As a control to *I*, five other tubes of milk, without the iodoform, were put through the same routine. They finally gave pure cultures of the bacillus. At no time did they differ in appearance from *I.*

K. Five tubes of sterile milk, with five per cent. of iodoform, were inoculated with a drop each of water, containing bacillus butyricus.

2d day. No visible change.

4th day. No visible change.

8th day. No visible change; no smell; but a very disagreeable, bitter taste in all. Agar-agar tubes inoculated.

15th day. Three of the agar-agar tubes contain pure cultures, two impure, of b. butyricus.

L. Five other tubes of sterilized milk, without iodoform, put through the same course, gave the same results.

M. A short, stout bacterium was isolated from some very foul milk, and used in the fifth generation in the following experiment. It was selected on account of the very active changes it caused in milk. Five tubes of sterilized milk, with five per cent. of iodoform, were inoculated by a drop each of water with the bacillus.

3d day. Cream softened up, more fluid, looks oily; milk clearer at the top, bottom denser; decided putrid odor. Agar-agar cultures made.

6th day. Agar-agar cultures pure.

N. This series was the counterpart of *M*, with the exception of the iodoform. No difference, except more smell, could be detected.

O. In the following was used what I presumed to be the putrefying, fluorescing bacillus, and five tubes of five per cent. of iodoform milk.

3d day. All coagulated in a big clot, whey clear.

10th day. Bad stink, like cheese. Agar-agar cultures made.

14th day. Four agar-agar cultures, pure and impure.

P. Control to *O.* No difference observed in the milk or the stench. Agar-agar cultures, all pure.

All the above experiments gave negative results, except the more moderate stench in the tubes inoculated with putrefying bacteria, and confirm those of Lübbert, Heyn, and Rovsing. They show that iodoform is not a germicide, and since cultures were got from all, are opposed to Sänger's result with the anthrax bacillus.

Next I took up the thread experiments of Sattler, and shortly satisfied myself that they were accurate. Growth does not readily take place from contaminated threads, provided they have been dusted with iodoform. But this in itself is no proof of any action other than physical on the part of the iodoform. The bacteria must be brought in contact with the nutritive material in order to grow, and by covering the threads

with iodoform we do our best to separate them from it. Ordinarily, the fluid absorbed would be sufficient to start their growth, did not iodoform, like lycopodium, repel water, and thus keep the threads dry. To test the above, ninety threads contaminated with staphylococcus pyogenes aureus, were divided into lots of thirty and dusted with iodoform, chalk, and lycopodium; all were then carefully laid on gelatine plates. The average taking of the threads was as follows: chalk, second day; lycopodium, fourth day; iodoform, fifth day. In view of the action of the lycopodium, it does not seem safe to draw any conclusions from this kind of experiments.

Having noted as Mikulicz points out, that fluids to which iodoform had been added remained clear longer than usual, the following set of experiments was made with bouillon:

Q. To three tubes each containing ten cubic centimetres of bouillon was added five per cent. of iodoform, and then one drop of water with staphylococcus pyogenes aureus. Three more tubes exactly the same, except for the iodoform, were prepared and all six stood in the same rack. At the end of twenty-three hours agar-agar plate cultures, each containing one drop of bouillon, were made. The plates made from the tubes with iodoform came very thick, too thick to count, yet distinct; those made from the simple bouillon were just like ground glass.

The above was repeated three times, but the drop of bouillon was diluted in ten cubic centimetres of water, a drop of which was taken for the plates. These could be counted and gave from two to four times as many colonies in the plates made from the simple bouillon as in those with iodoform. For instance, one lot gave me 20,000, 20,000, and 21,000, as compared with 5000, 6000, and 7000. Of course, the counting, or reckoning of so large a number of colonies is not accurate, but does not give room for any such errors as the difference mentioned above.

R. The same as *Q*, except that the fluorescing putrefying bacillus was used. Here the count gave 10,600, 10,000, and 14,300, against 33,000, 31,000, and 34,000 without iodoform. Besides this, at the end of ten days the iodoform tubes had but a moderate odor, while the others were very offensive.

Here at last we have proof, from laboratory experiments, of a detrimental action of iodoform on bacteria; for, by counting, the difference is clearly brought out. The greater or less degree of smell is of doubtful significance, since iodoform rapidly allays the stench from putrid bouillon. Here, since the bacteria have already produced the foul odors, the action cannot be due to diminished propagation, but a direct chemical action of the iodoform on the noxious substances is probable, unless its odor hides them.

The bacterial growth of ulcers and wounds is not capable of being reduced to a count, but by making cultures before and after the use of

iodoform, some idea can be got. For this purpose I selected six ulcers of the leg, because there was little chance of the iodoform doing any good; if the wounds had improved, any difference in bacteria might be justly attributed to the improvement and not to the iodoform. First, the lightest possible line culture was made, then the ulcers powdered with iodoform, and at the end of two days a new line culture made. Comparison of the cultures made before and after the use of iodoform showed a much stronger growth in the first set. This difference is to be ascribed in part to the direct action of the iodoform and partly to the drying of the wound. For iodoform does check the secretion and thus produce a food famine among the germs.

As a result of all the experiments, we may safely conclude that iodoform has no direct action as a germicide, a result agreeing with Heyn and Rovsing, also, that germicidal products are, probably, not derived from it in the presence of growing bacteria. On the other hand, the experiments with bouillon show that the presence of iodoform markedly retards the growth of bacteria, an action not before proven, and diminishes the foul odors of putrefaction. The diminution in odor cannot be ascribed to the action of iodoform on the bacteria, as pointed out before.

Why the iodoform failed to give positive results in the Heyn and Rovsing class of experiments is obscure. It may be due to the fact that in spite of the iodoform, crowding quickly occurs, the injurious effects of which, by restricting, quickly obliterate the action of iodoform.

Looked at from the clinical side, the ultimate object of all medical research, the following rules may be accepted:

1. Iodoform not being a germicide is not a fit substance to use to procure asepsis of instruments, materials, or wounds.

2. Iodoform is allowable, with the present state of our pharmacopœia, in infected wounds where the true germicides are contraindicated, as by danger of poisoning or impracticability.

3. As has long been known, iodoform has a decided tendency to stop serous oozing, and, therefore, may be indicated in wounds where the moisture threatens the integrity of the aseptic or antiseptic dressing.

RHEUMATIC LARYNGITIS.[1]

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Rheumatic laryngitis is a painful affection of the vocal organ, attended by more or less hoarseness and fatigue of the parts after talking, and sometimes by grave or even fatal obstruction of the glottis.

[1] Read before the Section on Laryngology at the Ninth International Medical Congress, Washington, September, 1887.

The affection may be either acute or chronic. The acute disease, from having been associated with articular rheumatism, has been recognized for several years, but it has been but little studied, and the literature of the subject is meagre.

Through the kindness of Dr. J. S. Billings, the library of the Surgeon-General's Office has been searched for me, but we have succeeded in unearthing only two articles upon the subject. The first of these, from a thesis of E. J. A. E. Emery Desbrousses,[1] 1861, relates to a case of acute febrile articular rheumatism with laryngeal localization, which terminated fatally. The patient was a woman twenty-four years of age, suffering from acute articular rheumatism and pericarditis. On the fourth day the larynx became involved, causing aphonia and severe pain, with suffocative attacks, which continued with varying severity until her death from slow asphyxia on the twentieth day. At the autopsy the arytenoids were found bare, but not necrosed, and on the left side a reddish serous fluid was found in the articulation, which demonstrated the rheumatic laryngeal arthritis. This seems to have been the first case placed on record, though brief references to the affection have been made by Besmer, Chomel, Lieberman, Dechamp, and Prof. Jaccoud, and cases have also been recorded by Fauvel, Coupard, and Joal.

The second paper is a very complete article on the subject by R. Archambault (Thesis, Paris, 1886). He gives a careful history of the literature of the subject, and has collected five cases, one by Emery Desbrousses, just referred to, one by Fauvel, and two by Coupard; to these he adds the history of one which came under his own observation. From these cases he draws the following conclusions:

1. Acute laryngeal manifestations of rheumatism are more common than is generally supposed.
2. These manifestations may affect separately the various parts of the larynx, mucous membrane, articulations, muscles, and nerves.
3. The congestions of mucous membranes are the most frequent as well as the most easily determined of the lesions.
4. They may give rise to accidents of suffocation, grave enough to necessitate surgical intervention.
5. The other manifestations are too uncommon and too little known to make a thorough and separate study of them.

TREATMENT.—Care should be taken to prevent the frequent occurrence of the laryngeal congestion in individuals predisposed to it, by taking care to avoid exposure to cold and dampness. The abnormal susceptibility of the larynx should be combated by fomentations of cold water upon the neck, and, at the same time, general bathing.

At the commencement of an attack, absolute rest should be enjoined, the use of diaphoretics to keep up activity of the skin, and the use of emollient gargles and inhalations of steam, with or without aromatics. If the case is very severe, a more energetic medication is advisable; hot fomentations, and application of tincture of iodine externally. If necessary, the use of vesicants should be resorted to, applied in front of the larynx. Leeches may

[1] Rheumatisme articulaire aigu, febrile localisation laryngée, péricardite et pneumonie; mort. 40. Strasburg, 1881, 25, No. 544 (These).

often be applied to advantage. If the pain is very severe, applications of solution of muriate of cocaine by means of a sponge-carrier will give relief. The administration of salicylate of soda is at times beneficial, but not so much so as in simple rheumatism. When suffocation is imminent, tracheotomy must be performed, as the only means of avoiding a fatal termination.

Of the chronic rheumatic laryngitis, to which I would call attention, I can find no mention in medical literature.

For many years past I have, from time to time, observed chronic painful affections of the larynx, attended by no erosions or ulcerations, and by but little congestion and swelling of the part. At first I was inclined to consider these merely cases of neuralgia, but several years ago I became convinced that they were not all of neurotic origin, and during the past two years several similar cases have been under my care which have confirmed me in the opinion that they are rheumatic in character.

At the last meeting of the American Laryngological Association, Dr. S. H. Chapman, of New Haven, Conn., read a paper on neuralgia of the pharynx and larynx, in which he described cases that seemed at first similar to those to which I refer. He thought them to have been caused by malaria. A careful perusal of his article will show that they were quite different from the cases I would term rheumatic.

The affection to which I wish to direct attention usually occurs in a person of rheumatic diathesis, but often the larynx or the tissues about the hyoid bone present the only evidence of the constitutional affection. In this disease, as in the chronic rheumatism of a mild character, which often affects the joints, or, as in muscular rheumatism, the pain is not constant, but may frequently disappear for a few days, especially during fine weather, to return again on slight exposure, or with changes in the temperature. Its course is erratic, but nearly always obstinate. These patients frequently have inherited or acquired a predisposition to rheumatism, and it is not unusual for them to complain of rheumatic pains in other parts of the body, but, singularly, they never suspect the true nature of the disease.

Several of the cases I have seen have been troubled with the pain for several months before coming to me, and I have usually found them filled with apprehensions of cancer. In no case has pain been very severe. In certain cases it has been most noticeable on using the voice, but it is often more troublesome when swallowing, and in some it is aggravated by every attempt at deglutition even of saliva. However, it varies in intensity from day to day, or from week to week, being nearly always worse in damp or chilly weather.

Patients commonly refer the pain to one side of the larynx, when this organ alone is involved, but in some cases it is also referred to the trachea, the region of the greater cornu of the hyoid bone, to the base of the tongue, or to the lower part of the tonsil on the corresponding side. In similar cases we sometimes find the pain confined to these latter regions,

there being no involvement of the larynx, but even in these the patient is liable to experience fatigue of the vocal organ after talking. Hoarseness and loss of voice are also frequent symptoms.

Upon inspection of the parts, one or both arytenoids may be slightly congested, or the redness may be confined to one side of the fauces, or to the pharynx. The vocal cords remain clear and the inflammatory symptoms seem altogether inadequate to account for the discomfort. In some cases the parts involved are slightly swollen, but in others no change of form is noticeable.

The diagnosis of chronic rheumatic laryngitis must be based on the history and symptoms, and the exclusion of neuralgia, and the various affections which cause organic change in the part. Acute catarrhal inflammations, chronic syphilitic laryngitis, and abnormal growths may be easily excluded. Tubercular laryngitis in its inception is often attended by fatigue of the larynx after talking and sometimes by pain, even before there is ulceration or swelling; but it has a different history from the rheumatic affections. In tubercular laryngitis the parts are usually paler than in health, while they are slightly congested in the rheumatic affection. In the tubercular disease the constitutional symptoms are marked, not so in the rheumatic.

Fully developed tubercular laryngitis cannot be mistaken for the affection under consideration.

In malignant affections of the larynx pain is often present, but from my observation I conclude that it does not often precede pronounced organic changes, therefore they are not likely to be confounded with the affection under consideration.

Rheumatic laryngitis is most likely to be confounded with neuralgia or paræsthesia of the organ. In distinguishing between these, the history must be carefully scrutinized, and rheumatic or neuralgic pains must be looked for in other parts of the body. In the rheumatic affection there are usually slight redness and swelling; not so in neuralgia. For confirmation of the diagnosis, we must sometimes await the results of treatment.

Rheumatic laryngitis usually runs a chronic course, extending over periods varying from two months to one or more years. In most cases, if not in all, there are periods of immunity from the soreness, but at other times there are quite severe exacerbations of pain. I recall one case which was troublesome at times for four or five years. Recovery may be expected ultimately, and the patient may and should be assured that the disease does not endanger life.

In the treatment of chronic rheumatic laryngitis I have derived considerable benefit from the local application of stimulant and astringent sprays, or pigments, and in some cases galvano-cauterization of the congested surface seems to have aided much in recovery. However, I have

relied mainly upon internal remedies suited to the diathesis. Iodide of potassium, salicylate of soda, guaiac, colchicum, and cimicifuga, have all been tried with more or less success. Extract of phytolacca has been given with apparent benefit, and oil of gaultheria, in doses of fifteen minims, three times a day, has at times given satisfaction.

By way of illustration I have selected from my note books, records of a few cases that demonstrate the characteristics of this affection.

CASE I.—Mrs. W., æt. thirty-two. General health perfect. About four years ago this lady complained of almost constant pain in the larynx, which, however, varied greatly from time to time. Upon examination, the whole throat, as well as the larynx, was found congested; but the pharynx was so exquisitely sensitive that she could scarcely tolerate inspection, and, therefore, declined any local treatment. This patient's father had been almost a cripple from rheumatism for many years; other ancestors had suffered greatly from it, and the patient herself had frequently been subject to rheumatic pains; but at the time referred to, there was no manifestations of the disease, excepting the pain in the larynx. She was not subject to neuralgia. Antirheumatic remedies were ordered and taken for a short time, but were not persisted in, as she had lost all faith in remedies for rheumatism, excepting the waters of a certain so-called Magnetic Spring, which had at times relieved her father.

Whether or not she visited the spring, I do not know, but the soreness continued at intervals for about two years, when it, with other rheumatic symptoms, gradually disappeared, and she has since been perfectly well.

CASE II.—Mr. H. G., farmer, æt. forty-seven. General health good, but he was morbid on the subject of cancer of the throat. He had been complaining for two months of pain and a sense of fulness in the larynx, which he feared would choke him. The soreness was not constant, but would come on quite suddenly, last three or four days, and then gradually subside.

The morbid sensations, when I first saw him, were referred to the upper part of the left side of the thyroid cartilage. When the attacks were at their worst his voice was husky, and occasionally he had been aphonic for a short time. He had been frequently annoyed by muscular rheumatism, and he stated that he felt "lame and tired all over his whole body" when the exacerbations came on.

Laryngoscopic examination revealed moderate congestion of the epiglottis and left wall of the larynx, with very slight swelling of the latter, also very slight congestion of the vocal cord, but nothing more. On touching the part with a probe, he claimed that the sensitive spot was either on the inner surface of the left wall of the larynx, or else just external to the left wing of the thyroid cartilage, but he was not quite certain which.

I placed the patient on twenty grain doses of bromide of potassium, four times a day, and fifteen minim doses of oil of gaultheria. I also applied a sixty grain solution of nitrate of silver to the left side of the larynx. Eight days later it was noted that he was almost well, and was to have returned to his home, but the soreness had reappeared lower down, at the upper portion of the trachea. During the next few days the pain shifted to the larynx again, and then to a point beneath the

sternum. Sixteen days after I first saw him he returned to his home, free from pain, with directions to take iodide of potassium, grains vijss, and oil of gaultheria, minims xv, three times a day. I learn that the pain returned, subsequently, from time to time.

Case III.—Miss T. G., æt. twenty-two. General health good. Her voice had been weak for four years, whenever she attempted to shout, but this gave her no special discomfort. For a month before consulting me she had been complaining of aching in the tonsils, larynx, trachea, and substernal region whenever she used the voice for a few minutes. The soreness was always worse in damp weather. Examination of the larynx showed paresis of the right vocal cord, which moved through only about one-third its normal excursion, but there was neither swelling nor redness.

In this case there was no previous rheumatic history, and there were no signs in the larynx excepting those of paresis.

Her principal symptoms were of only a month's duration, and I, therefore, concluded that the paresis was either of recent origin, or that it had nothing to do with the present attack; she complained of other pains which seemed rheumatic; she had always been worse in damp weather, and under the influence of salicylate of sodium, acetate of potassium, and oil of gaultheria she improved rapidly, so that I think the diagnosis was fairly established.

Just as I was completing this paper the patient returned, after several months' absence, complaining of severe and constant pain in the same regions as before. She had been free from pain for several weeks, during the interim, but it had recently returned with increased severity. No abnormal signs could be seen in the larynx, even the paresis having disappeared, and the evidences of rheumatism were more pronounced than ever before.

Case IV.—Mr. J. C. R., æt. thirty-nine. Patient complained of pains in the shoulders, chest, and back of the head, and of aphonia of four months' duration. He had suffered several attacks of inflammatory rheumatism, and had been frequently troubled with slight attacks of sore throat. General health good. Weight, pulse, and temperature were normal.

On examining the larynx, I found bilateral paralysis of the lateral crico-arytenoid muscles, with inability to close the glottis on attempted phonation, but there was no congestion or swelling.

In this case the pains, and possibly the paralysis, seemed to be of rheumatic origin. I saw the patient only once, and have not heard the result of treatment.

Case V.—Mr. C. F. M., æt. twenty-nine. General health perfect. Had complained of soreness of the throat much of the time for four months, of occasional hoarseness, and of rheumatic pains in the back and chest, and in the regions of the trachea and hyoid bone. These pains were always aggravated by damp weather and by exposure to night air.

Under the influence of stimulant applications to the throat and anti-rheumatic remedies internally, he speedily improved; but every four to six weeks, with some renewed exposure, his symptoms have returned. He is at present well, but I expect renewed attacks.

Besides these, several other such patients have been under my care, and I am confident that similar cases have presented themselves to other

laryngologists, but we have been accustomed to class them with cases of neuralgia or paræsthesia, with no very definite idea of their etiology, and but little hope of benefit from treatment.

I am confident that, with more critical observation, we will find many cases similar to those I have described, which are due to the same causes as muscular or articular rheumatism, in which we will obtain far better results from treatment than we have been accustomed to, if we bear this in mind, and prescribe accordingly.

64 State Street, Chicago.

THE INFLUENCE OF LEUKÆMIA UPON PREGNANCY AND LABOR.

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Our knowledge of leukæmia is at best fragmentary and incomplete; for its etiology is uncertain, its course and symptoms variable, and its treatment unsatisfactory. It occurs more frequently in men than women (at least 2 : 1, according to Osler[1]); but even in the few recorded cases of leukæmia in women the effect of the disease upon the reproductive functions is barely mentioned. We find it stated that sometimes menstrual and sexual disturbances are among its early prodromata; that it is most frequent at the climacteric; that in a few cases it has developed during pregnancy or after several miscarriages or difficult labors; that it has occasionally followed the sudden suppression of the menses from cold; that in non-pregnant leukæmic women amenorrhœa is the rule, though occasionally menorrhagia has been observed. Uterine hemorrhage seems to be rare, for Mosler[2] says that in 81 cases of leukæmia observed by himself and Ehrlich, hemorrhage occurred in 64, and that in only 3 was there hemorrhage from the uterus. In 21 cases of leukæmia in women observed by Mosler, disorders of the reproductive system occurred in 16.[3] M. Vidal[4] says that in four cases out of ten, pregnancy is the commencement of the disease in women. I have been able to find the reports of only four cases in which leukæmia was said to have occurred in the course of pregnancy; I have found none where a woman already leukæmic has been known to become pregnant.

A case was reported by Dr. Ingle to the Cambridge Medical Society

[1] Pepper's System, vol. iii. p. 909.
[2] Ziemssen's Cyclopædia, vol. viii. p. 385.
[3] Ibid. vol. viii. p. 506.
[4] Dictionnaire Encyclopédique des Sciences Médicales. Leucocythémie.

in 1880.[1] The patient, æt. thirty-three, when near her confinement showed extreme pallor and weakness. On examination the blood showed none of the characteristic changes found in pernicious anæmia, but there was a marked increase in the number of white corpuscles, so that white to red = 1 : 20. After a natural labor with very little bleeding, the symptoms persisted and fainting fits began; but she recovered completely under a course of iron. She had suffered in a similar way toward the end of her last confinement, but regained her health in the interval.

In May, 1870, Dr. Robert Paterson[2] read a paper before the Edinburgh Medico-Chirurgical Society on "Acute Leucocythæmia in connection with Pregnancy," in which he reported three cases, two of them fatal upon the eleventh and fourteenth days respectively after delivery. These cases, though interesting, are not very satisfactory, because no blood counts were made, the relation of the white to the red being roughly estimated during an ordinary microscopic examination, and no autopsy was held upon the fatal cases. The first fatal case reads very like one of acute puerperal septicæmia, and even in the second sepsis was probably an important factor. Dr. Paterson attributed death in both cases to the more or less rapid enlargement of the lymphatics of the throat, neck, and upper part of the chest. He says that he has carefully watched a number of cases during the latter months of pregnancy, and has always found that where there was marked sallowness of skin with general languor and tendency to faint, the blood was always crowded with leucocytes, even though spleen, liver, and glands were not enlarged; and that whenever these symptoms were absent, leucocytes were not abnormally abundant. I have been unable to find any other cases at all bearing upon the relations between leukæmia and pregnancy.

The following case, which I have still under observation, is unique and has some points of peculiar interest:

Mrs. S., æt. thirty-six, VII-para, was first brought under my notice in October, 1886, by Dr. George Ross, Professor of Clinical Medicine in McGill University. She was then seven months pregnant. During the autumn of 1885 she had been under treatment for leukæmia in Dr. R. L. MacDonnell's clinical wards in the Montreal General Hospital, and to him I am indebted for the earliest reliable report we have of her condition. Briefly her history then was as follows:

September 15, 1885. Mrs. S. entered Montreal General Hospital complaining of vomiting and a tumor in the left hypochondrium. Has been married fourteen years, has had six children (the youngest three months old), all living, and all subject to attacks of jaundice more or less severe. One attack of rheumatism at the age of thirteen. Never had malaria, though she lived in a malarious district in England until

[1] Lancet (London), 1880, vol. i. pp. 334, 335.

[2] Edinburgh Medical Journal, vol. xv. pp. 1073–1078.

the age of fifteen. Three years ago she came from England to Montreal, a city free from malaria. Since marriage has had occasional attacks of jaundice, ushered in by chills, vomiting, and slight abdominal pain. Occasional attacks of epistaxis ever since childhood. Diarrhœa a common symptom. Syphilis, alcoholism, and injury negative. Menstruation began at the age of thirteen—always scanty—intervals sometimes prolonged to six weeks. No pain until the last three years, since which time she has suffered pain in back, pelvis, and groins. Splenic tumor was first noticed by her about a year ago, at the beginning of her sixth pregnancy. She has been losing flesh for three years, but in the intervals of her icteroid attacks she is fairly well, though weak. The present attack began ten days ago with a severe rigor and fever; then followed anorexia, nausea, vomiting, constipation, sleeplessness, slight cough, and increasing feeling of weakness. She nursed her baby until the milk ceased, a few days ago.

Physical examination. Appears weak, pale, and anæmic—conjunctivæ pearly—a sallow tinge of skin, but no jaundice. Muscles soft and flabby. Temp. 103°; pulse 104, regular and of good volume; resp. 28. Tongue coated and moist; attacks of vomiting occur three or four times daily; skin harsh; no œdema, ascites, or enlarged veins. Splenic tumor extends from sixth left rib obliquely downward toward the umbilicus, and backward to the post-axillary line—oblique measurement 23 cm. (9 inches)—feels firm and smooth, and is notched on anterior edge. Liver dulness begins at the fifth rib and extends 5 cm. (2 inches) below costal border—measures 16.5 cm. (6½ inches) in mammary line; border sharp and well defined, surface smooth and firm. There is moderate tenderness over liver and spleen, and moderate tympanites, though the abdominal walls are flaccid. Lymphatic glands not enlarged. Heart: apex beat between fifth and sixth ribs, 11 cm. (4½ inches) from mid-sternum. The area of dulness considerably increased, beginning above at third rib and transversely about mid-sternum. A systolic murmur soft and blowing, maximum at apex, transmitted up to pulmonary cartilage, but not around to the left. Second sound normal at pulmonary cartilage, but very feeble at the aortic. Lungs clear throughout. Urine: heavy deposit of lithates. Retina unchanged.

17th. Red corpuscles per c. mm. 2,400,000. W : R = 1 : 40.

25th. Red corpuscles per c. mm. 2,900,000. W : R = 1 : 17. White cells all of large size.

October 31. Red corpuscles per c. mm. 2,480,000. W : R = 1 : 12½. White cells nearly all small and more the shape of red cells.

November 2. She left hospital and gradually regained health so as to be able to do housework without much fatigue.

January 28, 1886, her menses reappeared and lasted one week, varying in amount from day to day, very little at times, and again at times so profuse as to compel her to lie down from sheer weakness.

March 28. Menses appeared again, but were very scanty. Soon afterward morning sickness began, and during the next few weeks there were several attacks of epistaxis and melæna. The urine became high colored and scalding, and over the hepatic region dragging pains were felt, increased by overwork.

April 28. She again entered hospital. The spleen was found to be somewhat sensitive, and the liver so tender that she could not bear the slightest pressure. There was slight dyspnœa, but no œdema of feet.

or legs. Lips and gums pale; no fever or thirst; tongue clean, moist, and indented; appetite failing; abdominal walls flaccid. Temperature 98.4°, pulse 74. Lower edge of spleen extended downward to within 7.5 cm. (3 inches) of the left anterior superior spinous process. The vertical line of dulness in midaxillary line measured 15 cm. (6 inches), the oblique line 24 cm. (9½ inches). Liver dulness extended from sixth rib to costal margin. Blood: red corpuscles per c. mm. 3,400,000. W : R = 1 : 50. She was put upon a course of arsenic and iron and left hospital on May 3d, when a blood count showed, red corpuscles per c. mm. 2,900,000. W : R = 1 : 45.

October 8. She again entered hospital and for the first time came under my care. Her health was fairly good all summer, till about a week ago, when she had a sudden attack of vertigo while ironing. She fell to the floor and remained unconscious for about half an hour. Ever since she has suffered from headache. The next day she felt soreness over the epigastrium, aggravated by movement. Temp. 98.6°, pulse 108, resp. 20. Œdema has appeared in face, feet, and legs, varying in amount according to position. Thirst, anorexia, vomiting, dyspnœa on the slightest exertion, occasional attacks of epistaxis are now the chief symptoms. The dyspnœa is growing worse; there is no diarrhœa. The urine is orange-yellow in color, acid, sp. gr. 1015, contains 10 per cent. of albumen, but no sugar or casts. Splenic dulness 28 cm. (11 inches) in the oblique measurement. Hepatic dulness 15 cm. (6 inches). Blood, pale and watery-looking, hæmoglobin very pale, red corpuscles small. Red corpuscles per c. mm. 1,070,000. W : R = 1 : 10. After this she had repeated attacks of epistaxis and diarrhœa; the dyspnœa and œdema became rapidly worse, till at last she could not lie down at all and could get a few snatches of sleep only when in the knee-elbow position or propped up in a chair. During the two days immediately preceding labor, the attacks of epistaxis were frequent and uncontrollable, continuing for a couple of hours and then suddenly stopping. She grew so weak and faint that her condition became alarming, and it was with great difficulty that she was removed to the University Maternity Hospital. Soon after her arrival there slight labor pains began; in about three hours the liquor amnii came away and with it came the child (Oct. 29th). Not a drop of blood was to be seen. Frictions were applied to the fundus and after an hour and a half the placenta was carefully pressed off. Not a drop of blood was lost either then or afterward. Involution was excellent; the lochia were scant and slimy, without a tinge of blood, and ceased in a couple of days. Some hard scybalous masses gave her trouble for a few days. Her appetite was ravenous and could scarcely be controlled. A thin, watery fluid could be squeezed from the breasts, but there was never any tension or flow of milk. She convalesced rapidly and was discharged from hospital on the twelfth day.

Child. A female, born on the 214th day from the cessation of menstruation; weight, 4½ pounds; length, 18½ inches; length of cord, 20 inches. Apparently strong, slept well, nursed vigorously from a healthy breast, and throve nicely for the first day. The following morning, however, the mother clandestinely put the child to her own breast. It sickened at once; in a few hours a purpuric rash appeared on its face and spread slowly over its back and chest; it vomited and purged and in spite of every care died on the fourth day.

Blood two hours after birth of the child. *Mother*, red corpuscles per c. mm. 990,000; W : R = 1 : 4. *Child*, red corpuscles per c. mm. 5,210,000; W : R = 1 : 175. At the end of the third day another count was made. *Mother*, red corpuscles per c. mm. 1,100,000; W : R = 1 : 20. *Child*, red corpuscles per c. mm. 5,000,000; W : R = 1 : 150.

On the day of her discharge from the hospital the count showed, red corpuscles per c. mm. 1,900,000; W : R = 1 : 35.

The *placenta* was sent for examination to Dr. W. G. Johnston, Demonstrator of Pathology in McGill University; the following is his report:

Placenta, eighteen hours after delivery, was of normal size. Nothing special in its appearance. Blood in sinuses looked thin, pale, and watery; that in placental vessels only slightly clotted, in most places quite fluid and of a dark rich color. With the hæmatocytometer (Zeiss-Thoma), *placental vein: trunk*, red corpuscles per c. mm. 4,610,000, white 26,000; W : R = 1 : 173. *Branch*, red corpuscles, per c. mm. 4,600,000, white 36,000; W : R = 1 : 128. *Placental artery*, red corpuscles per c. mm. 5,410,000, white 20,000; W : R = 1 : 270. *Placental sinuses*, red corpuscles per c. mm. 950,000, white 263,000; W : R = 1 : 3.6 nearly.

NOTE.—The average of three counts was taken—the maximum and minimum were very near the average—no marked difference in any count; difference was under five per cent., which is the error allowed by this method. Hæmoglobin not estimated.

Microscopical examination of blood showed some nucleated red cells in samples from the *artery and vein*, but not in abnormal number. Nothing especial in the white cells on examination by Ehrlich's method of fixing and staining. In the *sinuses* a large number of small pale cells were found, highly refracting and difficult to distinguish from leucocytes. They were over one-tenth the number of red cells. In estimating the number of white cells, only those were counted which were obviously of that nature—doubtful cells were not included in either count—nucleated cells were not specially numerous in the blood.

Autopsy upon the infant, ten hours after death. Body fairly well nourished, numerous petechial spots about face, thighs, and neck, otherwise nothing of note externally. Thymus and thyroid normal, organs all normal, spleen not enlarged, Malpighian corpuscles distinct, but not enlarged. Blood was fluid and dark colored—nothing abnormal on microscopical examination. Bone-marrow red and abundant everywhere, also normal microscopically. Further careful microscopical examination of the organs showed that no collections of leucocytes existed, and that the thymus, thyroid, and spleen were normal.

After her discharge from the Maternity Hospital, Mrs. S. enjoyed tolerably good health, her color improved, the dyspnœa and œdema disappeared, and she gradually resumed her household duties. The menses appeared in December and returned regularly for a few months; and for the first time in her life the flow was profuse and bright red. They last appeared on April 28, 1887, shortly after which she again became pregnant. A little blood was occasionally vomited when the morning sickness was specially severe. The *splenic tumor* began at once to enlarge, just as it did when she was last pregnant.

July 12. Oblique line of splenic dulness 20.5 cm. (8 inches), and edge of spleen within 9 cm. (3½ inches) of the umbilicus. Downward in the axillary line, the dulness extends 20 cm. (8 inches) reaching the

crest of the ilium. No increase in hepatic dulness. *Blood*, red corpuscles per c. mm. 1,406,000; W : R = 1 : 20.

August 18. Looks more pale and puffy, splenic dulness about the same. *Blood:* red corpuscles per c. mm. 1,373,000; W : R = 1 : 3. Since the last count the red cells have not diminished very much, but the white cells have enormously increased.

Family of Mrs. S.: Grandmother, mother, and brother have suffered from symptoms pointing probably to leukæmia.

Walter, æt. fifteen, clerk in an office, is in poor health, feels languid and dull, and is losing flesh; slight splenic enlargement. July 13, 1887, red corpuscles per c. mm. 3,355,000; W : R = 1 : 200. August 18th, red corpuscles per c. mm. 3,240,000; W : R = 1 : 275.

Arthur, æt. fourteen, July 13, 1887, red corpuscles per c. mm. 4,725,000; W : R = 1 : 350.

Lydia, æt. eleven, July 13, 1887, red corpuscles per c. mm. 4,795,000; W : R = 1 : 350.

Louisa, æt. eight, was treated for leukæmia in Montreal General Hospital from October 5, to December 12, 1885. Splenic dulness then extended two inches below the costal margin, and stretched over toward the umbilicus. She is now in poor health, very puffy in cheeks and eyes, with spleen considerably enlarged, both laterally and vertically. October 12, 1885, red corpuscles per c. mm. 1,912,000; W : R = 1 : 15. December 2, red corpuscles per c. mm. 3,576,000; W : R = 1 : 16. July 13, 1887, red corpuscles per c. mm. 4,220,000; W : R = 1 : 300. August 18, 1887, red corpuscles per c. mm. 3,183,000; W : R = 1 : 240.

Charles, æt. six, July 13, 1887, red corpuscles per c. mm. 4,525,000; W : R = 1 : 350.

Freddy died December 26, 1885, æt. six months; was apparently pretty well until the mother's milk failed, a few days before her admission to the Montreal General Hospital (September 15, 1885). On examination at the hospital he was found to be leukæmic, with enlarged spleen, diminution in red and increase in white corpuscles. Unfortunately, the record of his blood count has been mislaid. He died three months afterward from abscess. No autopsy was held.

The chief points of interest in this case seem to be

1. The *family history:* Grandmother, mother, and brother of the patient have suffered from symptoms probably pointing to leukæmia. Two of her own children have had well-marked leukæmia, another is now in ill health with diminished red cells and enlarged spleen. None of her children reaches the standard of 5,000,000 per c. mm. All have had attacks of jaundice. Does heredity play any part in this case?

2. *Splenic enlargement* was first noticed by the patient at the *beginning* of her sixth pregnancy.

3. *Splenic and hepatic enlargement* always occur during pregnancy, and are generally accompanied by tenderness.

4. The *blood:* the progressively enormous increase of white cells with a decrease of red as pregnancy advances.

5. *Absence of uterine hemorrhage* during labor and the puerperal period; labor was dry and bloodless and the lochia untinged with red.

6. Rapid subsidence of œdema and dyspnœa after the termination of labor, together with the rapid increase in the number of red, and decrease in the number of white corpuscles.

7. The *extent* of recovery, so as to be able to resume household duties, and the remarkably chronic course of the disease in this case.

8. The *recurrence of pregnancy*—now the third time since splenic enlargement was first noticed.

9. Remarkable difference between the blood of the mother and child, and in the placental vessels and sinuses.

10. The disastrous effect upon the child of nursing from its own mother's breast—purpura, vomiting, purging, and death.

REMARKS ON A CASE OF TUBERCULOSIS PULMONUM; WITH DUODENAL ULCER.

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ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE UNIVERSITY.

The following case is of interest, not only on account of the difficulties of diagnosis which it presented, but as illustrating the value of some of the modern methods of scientific research.

Richard F., æt. thirty, born in Ireland, single, clerk, was admitted to the Hospital of the University of Pennsylvania, December 2, 1886. One brother is suffering from some lung affection; the rest of the family history is good. Except for the ordinary diseases of childhood, the patient had always been well until the year 1884, when, after four days of constipation, he was seized with violent colic and fever. His physician told him it was inflammation of the bowels due to a large collection of feces. This attack lasted about a week, and soon afterward his digestion began to be impaired. He suffered from a sense of weight in the epigastrium, with eructations of a clear watery fluid. Great disturbance of the digestion with loss of health continued, and in 1882 he came to this country, hoping that he might derive benefit from the change of climate. No gain in health was experienced, and during the last three years he has vomited very frequently from one-half to three or four hours after taking food, especially in the evening. There is a sensation of burning and pain in the epigastrium. Gas accumulates in quantities; is belched, and passed *per rectum*, and is a source of great distress. The bowels are constipated and require laxative medicine. He has never noticed that any one article of diet was borne better than others. His last medical attendant diagnosed dilatation of the stomach.

On December 3d the following note was made. The patient is very

much emaciated and extremely anæmic. The thorax is unusually long and narrow; the costal margins approaching the crests of the ilia very closely. Respiration is costo-abdominal and the expansion fairly good. Physical examination of the chest shows puerile breathing and normal heart sounds. The abdomen is scaphoid and its walls very lax. The liver and spleen are normal. The gastric tympany is very much increased, extending from the sixth rib to the level of the umbilicus in the left mammary line; and in the transverse umbilical line from the right costal margin to the left posterior axillary line. A distinct splashing sound can be produced, and dulness on percussion can be elicited at the lower boundary when the patient sits. No tumor or tenderness on pressure can be detected. There is no œdema of the body. The urine contains no albumen or sugar; specific gravity 1026.

He was given peptonized milk and was allowed to chew meat which had been slightly broiled. Tr. cardamomi comp. f ʒss, with drops viij of chloroform, was prescribed as a palliative. The stomach tube could not be employed at first, and systematic lavage was deferred.

10th. Hæmoglobin 65 per cent.; red blood cells 4,600,000 in c.cm. = 92 per cent. There is no alteration in the shape of the red globules, nor increase in the number of the white. The gastric tympany has greatly diminished.

14th. Weight, 97½ pounds.

25th. Been better until yesterday; then some eructations and epigastric pain. Vomited several times last night; matter watery; no blood.

28th. Nourished by nutrient enemata until to-day. Better. Peptonized milk recommenced.

Jan. 9, 1887. There has been no vomiting. Fowler's solution commenced to-day in doses of 2 drops thrice daily.

22d. The condition of the stomach has improved very greatly. Has vomited only once (on the 9th); the ejected matter consisting of a cupful of clear liquid, though he occasionally has a sensation of pain in the epigastrium causing great discomfort. Yet the general condition of the patient is worse; and the anæmia, weakness, and emaciation greater. Hæmoglobin to-day 25 per cent., and red blood cells 1,952,000 in c.cm. = 39 per cent. Weight on the 16th, 90 pounds. A sense of induration and resistance can be perceived over an area two inches square, just to the right of the pyloric region. It is apparently superficial and somewhat movable, yet not very distinct, in spite of the great laxness and thinness of the abdominal walls. Ordered iron with the arsenic.

Feb. 6. A distinct pleuritic friction is to be heard on the right side, below, and in front. There has been a slight cough and very slight muco-purulent expectoration for a few days. No other abnormal sounds heard in the lungs.

12th. Following Riegel's method, an examination of the secretion of the stomach was made yesterday. A meal of milk, rice, and bread was given at 11 A. M. At 5.15 P. M. the gastric contents were removed with the sound, and found to be nearly completely digested. They were filtered, and the filtrate chemically examined, but by a misunderstanding the matter remaining on the filter was not preserved.

The methyl-violet reaction showed free hydrochloric acid to be abundantly present. Uffelmann's carbolated iron test for lactic acid gave a negative result. The biuret reaction was obtained with very much greater distinctness than was in accord with the quite narrow ring

which Heller's test produced; thus showing that peptone was present. 25 cubic centimetres of the filtrate completely digested 5 centigrammes of freshly boiled egg albumen in 24 hours. The examination proved, therefore, that there was no defect in the quality of the gastric secretion. On physical exploration of the thorax to-day friction râles are heard in the same situation as before. At the right apex vocal resonance is slightly louder than on the left side; expiration is somewhat prolonged and loud, with a few moist râles at the end of inspiration, and there is slight dulness on percussion. The right supra- and infra-clavicular fossæ are slightly more depressed than the left. The sputum contains *myriads of tubercle bacilli.* The patient had at no time exhibited fever until the 5th inst.; from which date until to-day the temperature has ranged from 98° to over 101° F.

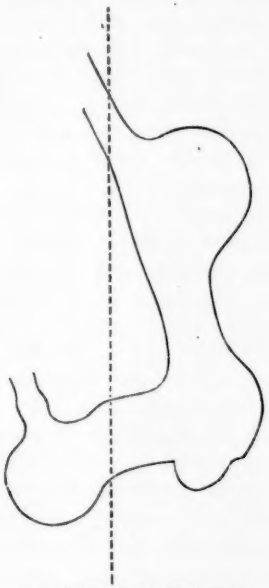
16th. Patient complains of night-sweats, and has a hard, dry cough, with scanty expectoration. Last night he vomited about one quart of a dark liquid not containing blood. This is the first occurrence of vomiting since January 9th.

24th. The physical signs of consolidation at the upper part of the right lung have become more pronounced. Vocal resonance is distinctly increased, expiration prolonged and broncho-vesicular, with a few râles at the end of inspiration. The percussion resonance is impaired in the supra- and infra-clavicular spaces, and in the supra-spinous fossa; and nearly flat in the infraspinous region. There are also decidedly increased vocal resonance and quite bronchial respiration high up in the right axilla. The temperature has continued slightly elevated, though seldom rising above 100°.

27th. Left the hospital, but was visited occasionally at his home. From this time the patient slowly failed. His emaciation became even more extreme, as did his anæmia, although no blood count was made. On April 8th there was virtually no expectoration and almost no cough. Enemata of hydrogen disulphide and carbonic dioxide after the method of Bergeon were begun on this date. Night-sweats had been troublesome. On June 4th he died. Gas had been administered with occasional intermissions up to a few days before death—*i. e.*, during a period extending over fifty-seven days. No benefit whatever had been experienced; and, in fact, the expectoration had decidedly increased during a portion of the time in which the treatment was being employed. The enemata frequently occasioned severe colic. He had been annoyed sometimes by a return of the severe gastric symptoms lasting several days, but these attacks were comparatively rare. The extreme noisiness of the locality in which the patient spent the last months of his life rendered it impossible to make a satisfactory examination of his lungs, though it was evident that the disease was extending.

The autopsy revealed a pyopneumothorax of the right side; the pleural cavity containing about two pints of very offensive sero-pus. The right lung was collapsed, and riddled with cavities in the upper parts. The left lung was but very little affected by the tubercular process. The stomach was of so peculiar a shape that we give an outline sketch of it drawn at the time. It lay nearly vertical, and was of a tubular form with three saccular dilatations. The largest, at the cardia, was about three inches in all its dimensions. Just below this portion the lumen of the stomach for a distance of three inches was but 1½ inches in diameter; it then widened to 2½ inches, forming a second expansion,

again narrowed into another short tube of 1½ inches in breadth, and once more widened immediately above the pylorus into the third pouch, slightly smaller than the second. The mucous membrane appeared to be everywhere normal, except where it had undergone post-mortem



Outline sketch of the stomach.

digestion. No ulcer or cicatrice could be found. The pyloric ring was thickened and narrowed, but admitted the index finger. Just beyond it there was an ulcer ¾ inch in diameter, situated on the posterior wall of the duodenum. It was still open, and a bloodvessel of medium size was distinctly visible at its base. The base itself was smooth, the edges rounded, and the ulcer only depressed a few lines. The tissues surrounding it and about the pylorus were much thickened, and the neighborhood of the ulcer slightly puckered. The ilium and lower part of the jejunum contained numerous ulcers with the peritoneum over them discolored. The first of these was at least two or three feet from the solitary duodenal ulcer. The spleen, liver, and kidneys were normal.

Microscopical Examination.—The mucous membrane of the stomach was nowhere affected, except at the part immediately adjacent to the pylorus, where decided atrophy was visible, caused, apparently, by an abundant small-celled infiltration. The tissues surrounding the duodenal ulcer were somewhat infiltrated, and a great increase of the amount of connective tissue was observed. In the vicinity of the ulcer, and especially beneath its base, were scattered numerous nests of micrococci. No tubercle bacilli were to be found. The walls of the ulcer in the ilium were filled with the infiltration of small cells and crowded with tubercle

bacilli. Nests of micrococci were also found, similar to those in the tissues of the duodenal ulcer.

In the study of the symptoms of this case the intense anæmia was early noticed as the most prominent, and attention was directed to the discovery of its source. Among the possible causes of anæmia suggesting themselves was Bright's disease. The urine had at no time, however, shown any trace of albumen, and there were no other grounds for believing organic disease of the kidney to be present. Leukæmia, pseudoleukæmia, and splenic anæmia were out of the question. There was no history of malaria, nor any reason to suspect poisoning by any mineral substance or an infection by syphilis. Symptoms of heart disease were absent, and there was no history or evidence of hemorrhage or of sepsis. Of the remaining possible causes of anæmia in this case the presence of intestinal parasites was the most unlikely, although anæmia is perhaps more frequently caused by them than is generally supposed. Yet in Reyer's cases of anæmia, due to the presence of *Bothriocephalus latus* (*Deutsches Arch. f. klin. Med.*, B. xxxix. H. 1 and 2, 31–69), there was no loss of adipose tissue, and the symptoms were exactly those of pernicious anæmia. The same is true of Runeberg's cases (*Deutsches Arch.*, B. xli. H. 3, 304). *Ankylostoma duodenale* and allied worms have also produced the same symptoms, as seen, for example, in the Gotthard tunnel-workers' disease of Griesinger, and the African chlorosis, brick-burner's anæmia, and mountain cachexia of other writers; but their occurrence is so rare that they cannot be taken into consideration here.

Pernicious anæmia was excluded, first of all, by the existence in this case of extreme emaciation. There would seem at times to be some confusion in the application of this term, but as employed by Biermer and his English predecessors it does not apply to cases in which marked emaciation is present. In most instances, indeed, the fat is exceedingly well preserved. Then, too, in the case under discussion there was not the poikilocytosis which is so usually seen in progressive anæmia. It should be observed, however, that this peculiar change in the shape of the red blood cells is not an essential characteristic of this disease; and, on the other hand, that it sometimes occurs in other forms of anæmia as well. We have seen it well developed, for instance, in a case of gastric ulcer, where large amounts of blood had been repeatedly lost by hæmatemesis. Another characteristic of pernicious anæmia is that the percentage of hæmoglobin is equal to or greater than that of red blood cells, while in anæmia of other types the reverse is true. This fact contraindicated the presence of this affection in the case of F., for when the blood cells were 93 per cent. the hæmoglobin was but 65 per cent.,

and at another measurement they were represented by 39 per cent. and 25 per cent. respectively.

Anæmia from atrophy of the gastric tubules, though perhaps more properly classified with pernicious anæmia, is purposely separated from it here, partly because it is readily conceivable that emaciation may accompany this condition, partly because, as in Ewald's case (*Berl. klin. Wochensch.*, 1886, 527), there may be more or less complete atrophy without much anæmia. It is true that nearly all the reported cases presented the characteristic symptoms of pernicious anæmia, including the preservation of the adipose tissue. As the starches and fats are digested independently of the state of the stomach, there is, indeed, no reason why the subcutaneous fat should disappear. Yet the gastric symptoms are so prominent in this condition, that the disease may with some propriety be classified separately. Moreover, in certain of the cases reported there had been decided loss of flesh. This is true of some of those quoted by Fenwick (*Atrophy of the Stomach*, 1881), though not of those which were under his personal observation. The patient of Henry and Osler (*Amer. Journ. Med. Sci.*, April, 1886) had fallen in weight from 306 to less than 140 pounds, although the fat was still fairly well preserved. The authors think this loss of weight must not be regarded as a symptom in their case. In Lewy's case, too (*Berlin. klin. Wochensch.*, 1887, No. 4), there was progressive emaciation, though it must be stated that this patient had a carcinoma in addition to the total atrophy of the mucous membrane, and both of Kinnicutt's cases were much wasted (*Trans. Assoc. Amer. Phys.*, vol. ii., 1887). We have discussed this matter more particularly, because the query early arose whether our case could be an instance of atrophy of the gastric tubules with extreme emaciation of the body. That there was no gain in body-weight in spite of the food administered and retained rendered the truth of this supposition at least possible. But the examination of the contents of the stomach, as described in the clinical history, seemed to prove beyond a doubt that there could be no widespread atrophy of the glands.

There was no evidence of carcinoma of any part of the body unless of the stomach; and as regards its existence here, the sense of induration in the pyloric region was suspicious, but not decisive. The diagnostic value of the examination of the gastric secretion is brought out most emphatically by this case. The result of this excluded the presence of carcinoma ventriculi.

Riegel (*Zeitsch. f. klin. Med.*, B. xi. H. 2 and 3, 167) made in 1885, 1379 examinations in 122 cases of diseases of the stomach, and found hydrochloric acid constantly absent in carcinoma. His experience in 1886 (*Zeitsch. f. klin. Med.*, B. xii. H. 5 and 6, 426) with 134 cases of

gastric disorders, only strengthened his opinions. The investigations of Korczinski and Jaworski (*Deutsch. med. Wochensch.*, Nos. 47, 48, 49, 1886) confirm this in almost every instance, as do those of Sansoni (*Rivista Clinica*, 1886, No. 10). Thus, in spite of the publications of Cahn and von Mering to the contrary (*Deutsch. Archiv f. klin. Med.*, B. xxxix. H. 3 and 4, 233), it may be considered established that hydrochloric acid is always absent or much diminished in cancer of the stomach, as far as shown by the ordinary methyl-violet and similar tests. Our own experience, though comparatively limited, is entirely in accord with that of Riegel.

Considerable importance was at first attached to the dilatation of the stomach; since long-continued fermentative dyspepsia, with vomiting of considerable quantities of food after eating, pain, constipation, and anæmia with emaciation, which have been noticed in other cases of gastrectasia, were present here. As is well known, anæmia and extreme emaciation attend severe cases of dilated stomach, and Riegel has shown (*loc. cit.*) that hydrochloric acid is constantly present when the dilatation is not produced by cancer. Lactic acid is also usually found in large quantities, and its absence in this investigation is accounted for by the course of treatment through which the patient had been passing before the chemical examination was made. But the physical signs of dilatation had rapidly passed away; there was found to be no retardation of digestion, and vomiting occurred but very seldom. The cause of the continued progressive anæmia and emaciation came then to be regarded as due to a latent, but developing tuberculosis. This hypothesis had, indeed, repeatedly suggested itself, but been rejected because there were neither physical signs, cough, nor fever. It is well understood that anæmia with emaciation is sometimes one of the earliest signs of phthisis; and that cough is often absent needs no remark; but our experience would show that it is most exceptional for fever to be persistently wanting when tuberculous disease is progressing. Rühle says, in his elaborate article on consumption (*Ziemssen's Handb. d. spec. Path. u. Therap.*, 2 Aufl. B. v. ii.), that fever is the principal cause of the loss of weight in the disease; and that although the temperature curve may be most variable, yet "there is no phthisis without fever." He admits that for weeks or months the temperature may be afebrile, but states that in these cases we have to do with a cirrhosis and contraction of the lung, which produces no decomposed cellular matter. It is by the absorption of this matter that the rise in temperature is principally brought about. Flint (*Pepper's System of Medicine*, 1st edition, iii.) writes that absence of fever indicates arrest of the disease. If, then, tuberculosis was in reality the active agent in the case reported here, we had to deal with the remarkable fact that the disease had apparently been steadily pro-

gressing—as shown by the increasing anæmia and emaciation—yet had remained for two months totally afebrile. In spite of this difficulty, this diagnosis was finally adopted, even before the slight muco-purulent expectoration, friction sounds, and rise of temperature appeared. When this took place another careful examination of the chest was made, but the result, though suspicious, was not conclusive, especially if it be borne in mind that the slight physical alterations were on the right side. It is at this point that the value of bacteriological investigations is so strikingly shown; for the sputum of our patient now revealed myriads of tubercle bacilli, thus rendering a doubtful diagnosis certain. While the presence of bacilli in any case is diagnostic of tuberculosis, it is equally true that their absence is a sign of the absence of the disease. But to determine positively that the sputum is free from them, oft-repeated examinations must be made, since a few scattered bacilli may easily escape observation. A valuable method is that of Biedert (*Berlin. klin. Wochensch.*, 1886, 713), in which about f℥ss of sputum is boiled with water and soda until it becomes nearly homogeneous. The sediment collected in a conical glass will contain all the bacilli, and can be readily examined. The question may be raised, Did not the patient contract tuberculosis within the hospital, at the time when pleurisy with rise of temperature made its appearance? Although this view would dispel the difficulties regarding the previously afebrile temperature, there are several reasons why it cannot be adopted. The purulent expectoration appeared somewhat before the rise of temperature and pleurisy developed; and this pleurisy, being undoubtedly tubercular, was almost certainly secondary to a disease of the lungs already existing, since primary tubercular pleurisy is quite unusual. Then it is inconceivable that such myriads of bacilli could have been produced and set free by the breaking down of a lung which had been attacked by tuberculosis but a week before. The physical signs, too, though slight, indicated a process of longer standing than seven days; and both the clinical history and the autopsy fail utterly to account for the emaciation and anæmia, unless the previous existence of tuberculosis be admitted as the cause.

How now do the revelations of the autopsy bear upon the study of the case? It is unfortunate that, after the existence of gastric cancer had been negatived as above stated, more attention was not bestowed upon the pyloric thickening, which undoubtedly had existed, although all symptoms of pyloric obstruction had passed away. It might have been that more careful study of this condition would have raised the question of duodenal lesions, which are occasionally associated with pyloric changes. In this case we have seen that at the autopsy the stomach presented a peculiar sacculated form, undoubtedly due to post-mortem contraction and rigidity, such as affects the skeletal as well as the vis-

ceral muscles. For unquestionably at an early stage of the case there had been marked gastrectasia, which apparently must be explained by the narrowing of the pyloric ring. The hypertrophied muscular wall was evident proof, too, of compensatory effort on the part of the viscus. The gastric condition is worthy of note, because it indicates that the lesion in the duodenum was of long standing, and probably antedated the pulmonary tuberculosis.

Interest attaches to the case as illustrating the remarkable difficulty which arises in the diagnosis of duodenal ulcer. This lesion occurs with comparative rarity. Osler has found it but 9 times in about 1000 autopsies (*Canada Medical and Surgical Journal*, March, 1887). It is generally solitary, and situated not far from the pyloric ring. Its cause is usually embolism, as in gastric ulcer. The presence of tubercular ulcers in the ilium and jejunum suggested the possibility that the solitary duodenal ulcer was also of that nature. There were, however, neither macroscopical nor microscopical evidences of tubercle either in the ulcer or surrounding it. The symptoms of doudenal ulcer are extremely variable and rarely sufficiently distinctive to render the diagnosis certain. In many instances the process is entirely latent. Pain was present in only four of the nine cases which Osler reports (*loc. cit.*). Pusinelli (*Berlin. klin. Wochensch.*, May, 1887, 314) publishes an interesting case of *pyopneumothorax subphrenicus* caused by the perforation of a duodenal ulcer which had existed for some time totally without symptoms. In our previous cases the symptoms were extremely misleading, and in one case especially they simulated those of gastric ulcer so closely that the true seat of lesion was demonstrated only at the autopsy, after death had occurred from acute peritonitis following perforation. On the other hand, Bocquoy (*Arch. Gén. de Méd.*, April, May, June, 1887) claims that the diagnosis in 4 of his 5 cases was incontestable. It must be said, however, that all of these suffered from intestinal hemorrhage, and that none of them were verified by autopsy.

The gastric symptoms in the case here reported may, it is true, have been due to the presence of the ulcer; but there had existed during life greater reason to attribute them to fermentative dyspepsia, and their relief by treatment seemed to prove that this was really the case. The presence of duodenal ulcer only appears very probable when attacks of gastralgia and tenderness in the epigastrium are combined with intestinal hemorrhage. As regards the ulcers in the jejunum and ileum already referred to, there was no indication whatever of their presence during life, and it is impossible to determine whether they antedated the pulmonary tuberculosis, or whether, as is usually the case, they were secondary to it.

TUBERCLE OF THE TESTIS.[1]

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The present paper is intended as a contribution to our knowledge of tuberculosis of the genito-urinary organs. Though much has been written upon surgical tuberculosis in this country, and though much good work in an operative way has been done in the field of genito-urinary tuberculosis, nothing of importance has been published as to the histology of these affections as seen in the light of modern research, clinical and microscopical. Indeed, there is a distinct void in English and American medical literature as regards these affections. To fill this in a measure, I have availed myself of the able assistance of Dr. Ira Van Gieson, one of the curators of Charity Hospital and here present the macroscopic and microscopic appearances found in four testes removed from two patients who are under my care. It fortunately happens that in these testes the course of the disease can be very clearly studied step by step. In these two cases, the interesting and not very unusual clinical fact is presented of the tuberculous process beginning spontaneously in the epididymis and involving the testis proper, and in marked contrast with what is so frequently the case, namely, the development of tuberculosis in an epididymis or testis the seat of previous traumatic or gonorrhœal inflammation.

Case I.—J. R., aged forty-two, American, bachelor, was admitted to Charity Hospital, Dec. 28, 1886. The family history on his father's side is excellent, but that of his mother is bad, since she, together with three brothers and three sisters, died of phthisis prior to the fortieth year. The patient says that he had pains in his chest and shoulder-blades, together with much expectoration, fifteen years ago; that six years ago he had a hemorrhage, and that four years ago he was told by a physician that he had phthisis. He has never suffered from any venereal disease.

In September, 1886, he fell from a high elevation, but experienced no injury to his testes known to him. Shortly after this his left testis began to be very painful and to swell. The enlargement went steadily on, accompanied by pain. The right testis became swollen and painful about Christmas, 1886, and on admission it was found to be larger than the left. Three weeks later an abscess was found in the left testis, which was by my direction opened by my house surgeon Dr. Bosch. About a fortnight later an abscess opened spontaneously in the right testis. The very weak and anæmic condition of the man, though the discharge of pus from the testis was great, led me to defer operation until he had been built up by extra diet and tonics. On the 23d of

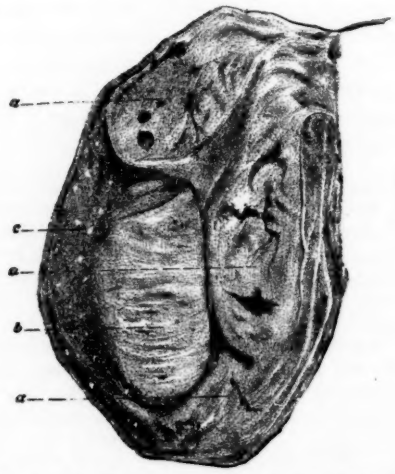
1 Read before the American Association of Genito-Urinary Surgeons, at the first annual meeting, at Lakewood, N. J., 1887.

February, I removed both testes under strict antisepsis, using a bone drainage tube. Healing was perfect at the end of a week. Before the operation the patient expectorated a great deal, but since, he has gradually improved in this respect, his general health is much better and he has gained considerably in weight. In the sputum of this patient the tubercle bacillus was found.

Gross appearances. 1. *Left organ.* The epididymis is enlarged, its average diameter 1½ cm., the testicle and epididymis together measure 6½ by 4½ cm. in diameter. The epididymis is honeycombed with larger and smaller yellowish semi-fluid areas. The outer surface of the albuginea is smooth. The mediastinum testis is thickened, sending out several short yellowish radiating streaks into the testis. Scattered over the cut surface of the testis—from four to six to a square centimetre—are small white opaque nodules, varying in size from a pin's point to a pin's head.

The right organ is slightly larger than the left, the epididymis is about the same size and similar in appearance, The testis contains an ellipsoidal cheesy mass, 2 by 3 cm. in diameter involving the mediastinum and adjacent testicle tissue (Fig. 1), so that there is left uninvolved a narrow crescentic area of the testis, containing small white nodules of the same character and distribution as in the other testis.

FIG. 1.



Right testicle of Case I. *a.* Swollen, purulent, and tubercular epididymis. *b.* Cheesy tubercular mass, involving the corpus Highmori and adjacent testicle tissue. *c.* Crescentic area of testicle tissue containing larger and smaller whitish opaque spots.

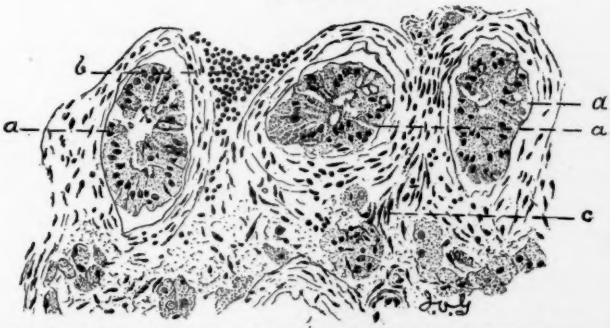
Microscopical examination. 1. *Left organ.* In the *epididymis* there are: 1, circumscribed collections of pus cells; 2, extensive areas of vascular small round-celled tissue resembling granulation tissue, with extravasations of blood; 3, diffuse tubercle tissue, not morphologically distinct from the tissue resembling granulation tissue, but identified as

tubercular by the presence of tubercle bacilli; 4, a very few well-defined tubercle granula, composed of one or more central giant cells with a surrounding zone of small round cells; these tubercles are isolated and scattered about in the interstitial tissue and in the tissue resembling granulation tissue; 5, groups of normal seminal tubules; 6, seminal tubules in various stages of degeneration.

In some of these degenerated tubules, the wall is infiltrated with small round cells, its outline is indistinct, and it merges into the surrounding tissue. The lumen frequently contains one or more multinuclear masses, apparently derived from the preëxisting epithelium, and in addition it sometimes contains small round cells and pus cells. The lumen is occasionally crowded with pus cells alone. The walls of other tubules and the small round cells infiltrating them have degenerated, so that the multinuclear mass in the lumen is surrounded by a granular zone containing few and fragmentary nuclei. In this way some of the degenerated tubules in section, resemble some forms of tubercle granula so closely that it is difficult to decide morphologically whether the appearances are due to a simple degeneration of the tubules or to tubercle granula. Portions of these degenerated tubules, which in section look like tubercle granula, may be termed pseudo-tubercle granula, for intermediate stages are present between the normal tubules and these degenerated tubules which simulate tubercle granula.

In the *testicle* there are: 1, tubercle granula; 2, an increased amount of interstitial tissue; 3, changes in the walls of the tubules and in the parenchyma; 4, grayish-white globular bodies of varying structure from one to two millimetres in diameter.

FIG. 2.



Chronic diffuse orchitis, associated with tuberculosis of the testicle. *a*. Seminal tubules with thickened walls and granular nucleated masses in the lumina. *b*. Cluster of small round cells infiltrating the interstitial tissue. *c*. New interstitial tissue between the tubules.

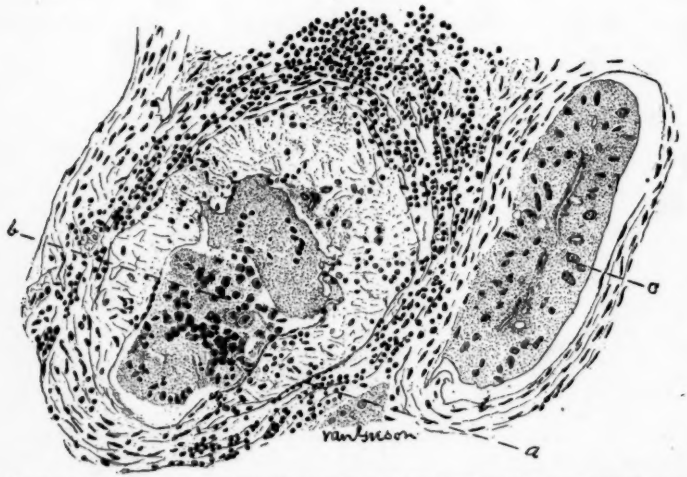
1. The tubercle granula are very few in number and are composed of one or more central giant cells surrounded by a zone of small round cells. A cheesy zone often lies between the giant cell and the small round-celled zone. Some are situated within the tubules, others in the interstitial tissue.

2. The interstitial tissue is loose in texture and composed of a finely reticulated basement substance containing fusiform and branching cells

and groups of large rounded cells with granular bodies. There are numerous clusters of small round cells scattered throughout the interstitial tissue (Fig. 2). Some of these clusters may possibly be commencing tubercle granula: others are perhaps phases in the development of the new interstitial tissue.

3. The walls of the tubules are thickened and their nuclei increased in number. The membrana propria is frequently separated from the remaining layers and the intervening space occupied by a transparent homogeneous mass, so that the wall frequently presents two zones, an inner structureless, and an outer nucleated lamellated zone. The membrana propria is often thrown into folds. The lumen of the tubules is occupied by a granular mass containing many nuclei, apparently formed by the desquamation and confluence of the cells lining the tubules (Figs. 2 and 3, *c*). This granular mass extends for some distance along the tubule and fills up the lumen as a plug. There is a space between this intratubular mass and the wall, and in the mass are a number of larger and smaller irregular cavities. These cavities at the central part of the mass are frequently larger and take the shape of long cracks and radiating fissures (Fig. 2). These spaces and cavities are perhaps due to the shrinking effect of the hardening agent. The majority of the intratubular masses have a peripheral

FIG. 3.



Showing the formation of a pseudo-tubercle granulum in chronic diffuse orchitis, associated with tubercular orchitis. *a*. Wall of seminal tubules, with an outer zone infiltrated with small round cells, and an inner granular zone. *b*. Contents of the lumen, consisting of a giant cell, granular detritus, free cells and nuclei. *c*. Adjacent tubule, with its thickened wall and intra-tubular granular mass of desquamated epithelium.

distribution of their nuclei, and transverse sections of many of them look like giant cells. Some of the tubules are filled with red blood cells. The diameter of some of the tubules is increased, due partly to

a thickening of the wall, and partly to a dilatation of the lumen. The outer zone of the wall is thickly infiltrated with small round cells (Fig. 3); the inner zone is coarsely granular and contains a few scattered nuclei. The lumen contains usually one or more large multinuclear masses resembling giant cells, also granular detritus, free cells and nuclei. The contents of the lumen seem to be formed by the disintegration of the intratubular mass, which in the majority of the other tubules fills up the lumen as a solid plug. Many of the dilated tubules with the small round-celled infiltration of the wall, and the fragmentary contents of the lumen, resemble very closely some forms of tubercle granula, but as these changes in the tubule seem to be dependent on simple inflammatory and degenerative processes, the nodules which these tubules present on section may be called pseudo-tubercle granula. These pseudo-tubercle granula in the testis are produced by the chronic diffuse orchitis (Fig. 3). They are generally isolated.

4. Some of the grayish white globular bodies are composed of amorphous material in which the outlines of one or more seminal tubules may be faintly seen. Others have a still less distinctive outline and it is difficult to decide how they originate.

The smallest of the minute white spots, noted in the description of the gross appearances, were occasioned by tubercle granula, or by the larger clusters of small round cells infiltrating the interstitial tissue, or by pseudo-tubercle granula. The larger spots were due to the grayish-white globular bodies. The walls of some of the bloodvessels were thickened. The vas deferens was normal.

2. *Right organ.* The microscopic appearances did not differ materially from those in the left organ. The large cheesy mass (Fig. 1) was composed of confluent miliary tubercles and cheesy areas.

CASE II.—An American, merchant, married, aged thirty-three and one-half years, a thin, pale cadaverous-looking man, was brought to me in the latter part of August by his brother, a prominent practitioner of New York. His family history showed that a brother died when eighteen months old of tubercular meningitis, and that two paternal aunts at the age of eighteen and fifty-five, and a maternal grandfather at the age of forty-seven, died of phthisis. The patient has never enjoyed good health, having suffered more or less from nasal catarrh, functional disease of the heart, and indigestion. He is a man of correct habits, and has never been exposed to venereal disease, never having had intercourse with any woman except his wife. When he was two and one-half months old he had tubercular meningitis, which lasted two months. He has, since a child, suffered from left inguinal hernia.

In the early part of November, 1885, the patient noticed a slight swelling on the left side on the head of the epididymis, which he thought was a part of his hernia. This swelling was accompanied by a slight watery discharge from the urethra. Though various external and internal remedies were used, the swelling increased until it involved the whole testis, which in February, 1886, was twice its normal size and accompanied by a large hydrocele. In April, an opening formed near the tail of the epididymis, discharging considerable pus. A large abscess also formed over the right biceps muscle. About August, the right testicle began to swell, and in November, an abscess seated on it opened spontaneously.

In October, 1886, the patient consulted me, and I advised the prompt removal of both testes. This was emphatically declined by the patient. From the date of the October, 1886, consultation until the spring of 1887, I heard at intervals, through the brother of the patient, that he was in wretched health, that the testes were larger and still discharging profusely, but that he obstinately refused to undergo an operation. Early in April, however, he realized the fact that he was steadily growing worse, and that the lesions of the testes were progressively becoming worse, and he gave his consent to the operation.

On the 7th of April, with the assistance of Dr. C. W. Cutler, Dr. R. H. Greene, Dr. J. A. Bosch, and Dr. W. C. Gilley, my hospital assistants, I removed both testes under full antisepsis, as in Case No. 1. The healing of the wound was rather slow, but unattended by pus formation. Some weeks before a large abscess had formed in the hypogastric region, and after much persuasion was opened, giving vent to a large quantity of pus. The healing of this pus-secreting cavity was much retarded by the obstinate refusal of the patient to allow it to be properly treated by drainage, irrigation, etc.

No bacilli were found in the sputum of this patient.

Gross Appearances. 1. *Left Organ.*—The epididymis is enlarged, its average diameter 1 cm. The testicle and epididymis together measure 6 by 4½ cm. in diameter. The epididymis is cheesy, and has at its summit a small elongated cyst containing clear fluid. The mediastinum is thickened, and its upper part contains a nodule the size of a pea, with a cheesy centre. A few minute white spots are scattered over the cut surface of the testicle.

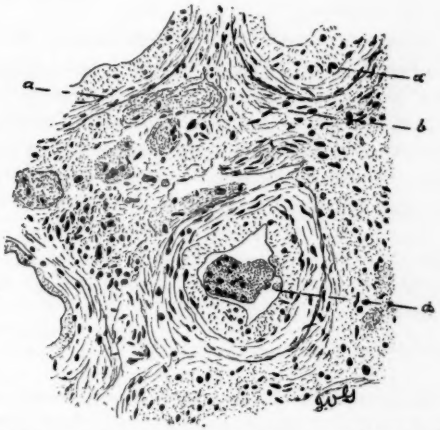
2. *Right Organ.*—The epididymis is enlarged, its average diameter 1½ cm. The testicle and epididymis together measure 6½ by 5½ cm. in diameter. The epididymis is soft and cheesy. A mass of confluent nodules occupies the mediastinum and about one-third of the testicle. The remainder of the testis contains larger and smaller nodules with intervening testicle tissue. The surface of the albuginea is nodular.

Microscopical Examination. 1. *Left Organ.*—The *epididymis* contains tissue resembling granulation tissue and cheesy areas. In the *testicle* there are diffuse changes in the stroma and parenchyma similar to those in the testicle of the preceding case, but less marked. The interstitial tissue is moderately increased, the walls of the tubules are but slightly thickened and the outlines of the desquamated cells in the lumen are often still distinct. In the sections pseudo-tubercle granula are absent. Tubercle granula seem to be present only at the mediastinum. The vas deferens has a cheesy centre.

2. *Right Organ.*—The *epididymis* is similar in structure to the left epididymis. In the *testicle* there are larger and smaller tubercles generally associated with fibrous tissue and cheesy degeneration. The changes in the interstitial tissue, in the tube walls and in the parenchyma are more extensive than in the preceding testicles. The interstitial tissue is voluminous and approaches the character of dense fibrillar connective tissue (Fig. 4). The walls of the tubules are greatly thickened, frequently showing two zones. A shrunken, coarsely granular mass with few nuclei occupies the lumen. In places the lumen is nearly obliterated by the thickened walls. The vas deferens has a cheesy centre.

Tubercular orchitis may occur in connection with acute general miliary tuberculosis, or with chronic miliary tuberculosis in other organs. It may also occur in conjunction with tuberculosis of the genito-urinary tract, or it may be localized in the testis or epididymis.

FIG. 4.



Chronic diffuse orchitis, associated with tubercular orchitis. *a*. Thickened walls of the semina tubules, showing two zones—one of the tubules contains a shrunken granular nucleated mass in the lumen. *b*. New fibrillar connective tissue between and around the tubules.

Tubercular orchitis and epididymitis are frequently so intimately associated with different inflammatory and degenerative changes, that it is often difficult in parts of the organ to interpret the appearances. Thus in both of the organs in Case I., in addition to the tubercular process and the acute suppurative inflammation in the epididymis, there was a diffuse orchitis and a degeneration of the tubules in the epididymis—each accompanied with the production of pseudo-tubercle granula—which were much more prominent features than the tubercular process. These cases illustrate three phases of diffuse orchitis; the left testicle in Case II. an earlier, both testicles in Case I. a later, and the right testicle in Case II. a still later stage. Arnold describes pseudo-tubercular bodies occurring in the liver and kidney in conjunction with tuberculosis of these organs. In tuberculosis of the liver pseudo-tubercular bodies may be formed by changes in the walls of the gall-ducts, accompanied by a desquamation and confluence of their lining epithelium. Sections of the masses of confluent epithelial cells of such gall-ducts resemble giant cells. In tubercular nephritis pseudo-tubercular bodies may be produced by similar changes in the epithelium and walls of the uriniferous tubules.

The causal relations between the diffuse orchitis and the tubercular process do not seem to be definitely ascertained.

Gaule[1] applied the terms spermataphoritis to the changes in the parenchyma, and perispermataphoritis to the changes in the tube walls and stroma of the testis, and believed that both of these lesions were due to the extension of an inflammatory process along the tubules from the epididymis to the testis.

Waldstein[2] observed changes in the parenchyma of the testis with an unappreciable lesion of the interstitial tissue; and marked interstitial changes with slight parenchymatous alterations, and believed that the lesion in the parenchyma was not dependent on the interstitial changes, but due to alterations in the tubuli recti, caused by new growths of connective tissue in the corpus Highmori. This hypothesis would explain the not infrequent regional involvement of the testis by the diffuse orchitis. In the cases of tubercular orchitis examined by Gaule and Waldstein, the diffuse orchitis was present in the majority.

Reclus[3] describes cases of tubercular orchitis in which suppurative inflammation is a prominent lesion.

40 W. Twenty-first Street, New York.

[1] Anat. Untersuchungen über Hodentuberculose (Phthisis testis), Virchow's Archiv, vol. lxix. pages 64 and 213.

[2] Zur Kenntniss der tuberculösen Erkrankungen des Hodens. Ibid., vol. lxxxv.

[3] Du Tubercle des Testicule et de l'orchite tuberculeuse. Paris, 1876.

REVIEWS.

NERVOUS DISEASES AND THEIR DIAGNOSIS. A TREATISE UPON THE PHENOMENA PRODUCED BY DISEASES OF THE NERVOUS SYSTEM, WITH SPECIAL REFERENCE TO THEIR CAUSES. By H. C. WOOD, M.D., LL.D., Member of the National Academy of Science. 8vo. pp. 501. Philadelphia: J. B. Lippincott Co.

THE American profession has cause for congratulation at this new and important addition to its literature, and Dr. Wood has reason to feel proud of a work which is far in advance of the many treatises on nervous diseases which have appeared in the last few years. There can be no better evidence of the growing importance of neurology as a distinct branch of medical study than the appearance of a work like the one under consideration, devoted solely to the diagnosis of diseases of the nervous system.

Dr. Wood does not waste much time or space with an introduction, in which he tells us at once that in studying a disease he will adopt the plan of going "from the symptoms back to the lesion, and not from the lesion to the symptoms." This has been found, in the author's experience, to be the best clinical method of studying brain and spinal diseases, and this course of investigation is followed throughout the work. The introduction is principally taken up with the consideration of neurasthenia, or nervous weakness, because "the symptoms of this state are so indefinite and fugitive, that it is almost impossible to marshal them into order." Dr. Wood even insinuates that much time has been wasted in attempting to make neurasthenia a disease. However, though it may have no definite pathology, cases of this affection are increasing in number every day, and if some conclusion could be reached as to the locus morbi, a decided progress might be made in the treatment. Dr. Wood defines neurasthenia to be "a bodily condition which is frequently associated with various chronic disorders, and not rarely coexists with perverted functional activity of the nervous centres, which perverted nerve-functions, may, however, exist independently of any perceptible neurasthenia, and are not simply the outcomes of the neurasthenia."

In describing melancholia, Dr. Wood says, "The connection between the depressed emotions and the health of the abdominal organs is too well known to need comment." The same thing can be said in regard to neurasthenia, which is so closely allied to mild melancholia, that, for convenience of classification, it could be placed in Dr. Wood's division of "Disturbance of Intellection." However, it must be admitted that nervous depression, or neurasthenia, is itself easily diagnosed, though its origin, or the cause for its continuance, is, as yet, a very unsettled question. Hence, until some definite conclusion is reached, this prevalent and very perplexing disease can find but small consideration in a

manual for diagnosis. The classification of diseases in this volume is entirely on a clinical basis. The chapter on "Paralysis" includes all forms of loss of motion, cerebral, spinal, or local, and thus the system of studying from the symptoms to the lesion is carried out.

The treatment of this important division of the work is full and interesting, and will, no doubt, make the diagnosis of these somewhat obscure diseases an easier task for the young specialist or the general practitioner. A more detailed account, however, might have been given of multiple neuritis, since this comparatively new disease has attracted lately so much attention. The persistence of the so-called "anæsthesia dolorosa," even after the paralysis has disappeared, is of curious pathological significance, and it is singular that the sensory nerves should be so much more deeply implicated in a morbid process in which motor paralysis is the chief symptom.

"Motor Excitements," "Reflexes," "Disturbances of Equilibration," "Trophic Lesions," and "Sensory Paralysis," constitute the next five chapters of the work, and it will be seen from the topics discussed, under these heads, that diseases are classed by their symptoms rather than by the lesions producing them, and thus for clinical work and study the book is rendered very valuable. In the following chapter on "Exaltations of Sensibility," the subject of pain, including the important divisions of headache and neuralgia, is considered, if not in proportion to its clinical demands, yet probably as fully as the scope of the work would justify.

In discussing migraine Dr. Wood is satisfied with the following explanation of its pathology: "There have been a number of theories brought forward as explanatory of the attack of migraine; as these theories still remain theories, it is beyond the province of the present work to discuss them, clinical experience showing that migraine is in some way related to gout; secondly, that in the great majority of cases it is an inherited disorder, which has close relations with other serious neurotic ailments."

The next chapters include the study of "Disturbances of the Special Senses," "Disorders of Memory and Consciousness," and bring us to the concluding section on "Disturbances of Intellection," which is the most important chapter of the work.

It is but fair to Dr. Wood to detail in a review of his book the classification which his study has led him to adopt, for it makes this volume one of great value as a book of reference, and by avoiding a useless and ponderous nomenclature brings the whole subject more within the reach of the general profession.

It is a matter of special significance that this latest work on nervous diseases should give the study of insanity a decided and prominent place in its pages. Neurology can never attain its true dignity until its most important branch is more fully and generally recognized, and when this truth becomes gradually more impressed on the profession the study of insanity will become an active clinical pursuit, and better, and more available hospitals will be provided for the treatment of the insane.

J. V. B.

LA GOUTTE, LA NATURE ET SON TRAITEMENT. Par DR. W. EBSTEIN, Professeur de Médecine et Directeur de la Clinique Médicale, de l'Université de Göttingen. TRADUCTION du DR. E. CHAMBARD, Ancien Interne des Hôpitaux de Paris; INTRODUCTION du PROFESSEUR CHARCOT, Membre de l'Institut. Ouvrage orné de 12 chromo-lithographies. Paper, 8vo. pp. xii., 194. Paris: J. Rothschild, 1887.

THE typography, paper, illustrations, and general appearance of the French edition of Ebstein's well-known monograph are a credit to the publisher, and a source of pleasure to the reader. There is no more reason that scientific works should not gratify that sense of beauty which the student possesses in common with his fellowmen, than that the devil should have all the good music; but it is not often that a medical book, at least, is issued in the style of the one under review.

Charçot's introduction, which does not fill two pages, is simply a commendatory notice of author and translator, and a regret that the former has not been able to profit by Bouchard's recent lectures. The work is an elaborate and systematic study, divided into five books: The first devoted to an historical review; the second, to pathological anatomy; the third, to spontaneous and experimental gout in animals; the fourth, to the action of uric acid, its compounds, and analogues upon animal tissues and organs; the fifth, to human gout from a clinical standpoint.

The author considers the first step in the gouty lesion to be a process of necrosis occurring in fibrous tissues and cartilage from the poisonous action of soluble urates (neutral urate of soda), circulating in the blood in consequence of nutritive disturbances. At the points of necrosis crystallization of insoluble (acid) urates occurs, and the typical gouty deposit is formed. It is strenuously insisted upon again and again that "necrotising and necrotic foci" are primary, and "uratic deposits" secondary. While the production of uric acid is recognized as an error of nutrition, inherited predisposition is regarded as the principal factor; a slight departure from strict regimen may awaken the active disease in a predisposed subject, while great excess in another will not produce gout.

Instances of congenital pyrocatechinuria and cystinuria are adduced in support of the position that anomalies of excretive functions need not necessarily be due to errors of life. The muscles and the marrow of bones are looked upon as seats of uric acid formation. Localization of gouty processes is explained by the favorable conditions for the separation of uric acid from the nutritive fluids in the articulations, on account of sluggish circulation; these conditions being heightened at the extremities.

Of the two divisions, primary articular gout and primary renal gout, the former is considered by far the more common; the kidneys being affected late in the disease, or not at all. Secondary kidney affection is recognized as a cause of generalized uric acid stasis. Primary renal gout, more rare, is likewise more dangerous. It may run its course as a nephritis without articular complication to show its gouty nature. The diagnosis may be considered established if gouty manifestations occur late in the course of a pronounced nephritis.

The questions of the relations between saturnine intoxication and

gout, and the possibility of nephritis as an intermediate state, are discussed but left undetermined. In this connection may be cited a remarkable case seen by the reviewer in the medical out-patient department of Jefferson Medical College Hospital, during the service of Prof. Bartholow, which exhibited in an anæmic poorly nourished painter of congenitally low type, enormous gouty concretions of urate of sodium, in most of the finger- and toe-joints, conjoined with a far advanced parenchymatous nephritis: an autopsy could not be obtained, but the history seemed to point to coincident development of articular and kidney disease.

To base the therapeutics of gout upon a proper apprehension of its exciting causes, Dr. Ebstein thinks it wise to study the history of generations and even entire races. We have to contend not with mere retention, but overproduction of uric acid. Strict regimen is necessary from the first, for all who inherit the gouty diathesis; for the non-appearance of typical attacks does not guarantee the annihilation of the tendency, which may manifest itself insidiously and obscurely. Obesity in a threatened individual must arouse the physician's watchfulness. The treatment of the obesity is an essential element in the treatment of gout. Diet should consist of enough albuminous matter, not only to conserve the provision of albumin in the organism, but to augment it—say 8 to 9 ounces of roast or boiled meat daily. Fatty food is not prohibited, but a sufficient quantity to aid nutrition is considered the best measure against obesity. As to character, the taste of the patient is to be consulted. The quantity should not exceed in general 2 to 4 ounces daily. Other hydrocarbons are to be avoided as much as possible; 3 to 4 ounces of bread constitute the extreme limit. Pared fruits and leguminous vegetables are permitted in reasonable amount. Turnips and similar vegetables are interdicted in most cases. Further than this, Sydenham's advice as to regime is followed. Absolute avoidance of beer is recommended. The use of wine is interdicted to the good liver, but not absolutely, if too much importance be attached to it, for the sake of securing obedience in other respects. Unless an attack supervenes, one or two glasses of light natural wine are permitted daily. The rather liberal use of water, as a broom to sweep out noxious materials, is recommended; especially natural Seltzer water, but not more than one bottle daily. Large quantities of alkalies are not advised, because the gouty tendencies are not susceptible of complete cure.

Certain palliatives, simple and harmless, are endorsed by experience; among them fruits, especially apples, containing vegetable acids combined with alkaline bases. Medication in general is avoided in the absence of special indications. Mineral waters are to be used, but not abused.

Regular exercise plays an important part in the prevention of gout; and when active exercise is not practicable, passive exercise—*i. e.*, frictions, massage, etc.—must be instituted. Journeys to the Alps of Switzerland and the Tyrol are of advantage. The claims of various spas and springs are considered carefully. Individual circumstances must modify balneotherapy. For the access of gout, the elevated position and regulation of diet are instinctively employed by the patient. As to medication, Ebstein places beside colchicum, the salicylates, especially the lithium salt. Colchicum must be prudently handled. Pain may be relieved by anodynes, especially morphine. The general indication is

to secure elimination of uric acid as rapidly as possible. Complications are to be treated appropriately. In primary renal gout, general principles must guide the physician. The diathesis is to be combated, and tonic measures occupy a front rank. S. S. C.

THE PRACTITIONER'S HANDBOOK OF TREATMENT; OR THE PRINCIPLES OF THERAPEUTICS. By J. MILNER FOTHERGILL, M.D, Physician to the City of London Hospital for Diseases of the Chest, etc. Third American from the Third English Edition. 8vo. pp. 660. Philadelphia: Lea Brothers & Co., 1887.

No one can read this work without experiencing a feeling of pleasure, and if Dr. Fothergill contributed nothing else than his peculiarly fascinating style, the medical profession would still remain a debtor to him. But he does more than this. The character and scope of this work stamp him as a teacher in a sphere of medicine which is but little trod by other medical writers. In it he goes into the hidden nooks and byways of the therapeutic art, and discusses points which are of daily value to the student of medicine, but which are nowhere brought out so well and so practically as they are by him. It is as the author informs us in the preface, an effort "to analyze and elucidate the *modus operandi* of the measures in common use, and is a work on medical tactics for the bedside rather than the examination table."

Evidently Dr. Fothergill's strength lies principally in the direction of revivifying the practical points in medicine, but we think it is about time that the profession demands of those who write their text-books to give a clearer view of the pathology of many important diseases than has been their custom. We especially refer to the pathology of pulmonary consumption. There is no subject, perhaps, upon which authors are, as a rule, more conflicting in their statements than they are in their definition of tubercle. Dr. Fothergill is particularly loose in the language which he employs in describing its structure. He starts out (page 194) by condemning Laennec for teaching "that tubercle was a special growth," and then states that "tubercle is modified connective tissue—nothing more or less." This, according to the latest pathological researches is strictly true, and Dr. Fothergill would have done well had he stopped here; but in a few pages further on (page 197) he contradicts his previous definition by stating that "We must start off by the understanding that tubercle is but a modification of ordinary inflammatory products, not a true neoplasm."

The great sin of most medical writers is this habit of classifying the products of connective tissue, and of ordinary catarrhal inflammation of the lung under the name of tubercle. It is true that so far as their form is concerned, which may be tubercular or nodular, they may be called tubercle, but our opposition to such a practice is based on the fact that there are no two other pathological products so diversified in genesis and in structure as these, and hence for the sake of clearness, if for nothing else, the term which is used to define one should not be used to define the other. The former is commonly called the gray, and the latter the

yellow tubercle, and it must be admitted that if these products were thus properly qualified they could be used with tolerable precision, but this they are not, and from present appearances there is no likelihood that they ever will be; and hence the implication, that they are one and the same structure, will never vanish from the literature of pulmonary consumption.

The latest works on pathology unquestionably show that the true gray tubercle is a neoplasm—a hyperplasia of connective tissue; that it is a specific structure; and that it begins and grows in the lymph-spaces and channels of the inter-alveolar, peribronchial, and perivascular lymphatic tissue; while, on the other hand, the yellow tubercle (so-called) is not a specific structure, but an intra-alveolar product which is principally composed of accumulated catarrhal cells. It has its beginning in the epithelial layer of the alveolar wall, does not grow, but acquires its size through accretion, and possesses no structure, and if the expulsion of the accumulated alveolar products would keep pace with the proliferation of the same, it would never have a tangible existence.

While on the subject of tuberculosis, we may as well draw attention to the fallacious rule which Dr. Fothergill lays down as a guide in sending consumptive patients away for climatic treatment. He is in full accord with the views of Dr. Fuller on this subject, whom he quotes as follows: "We must, in selecting a suitable climate, ascertain first, the sort of climate and the degree of temperature which formerly suited the patient's constitution, or, in other words, agreed best with him when he was in health."

It may be stated here, that, if all other things are equal, an individual as long as he is well, enjoys health most fully when he is surrounded by a climate in which he and his ancestors were born and reared. An adaptation, more or less complete, slowly takes place between the functions and structures of the body and the surrounding forces and conditions, such as heat, cold, light, air, humidity, etc.;—the influence of the latter forces producing a constant healthful stimulation. The truth of this assumption is fully verified by the fact that the emigration of a people to a strange and unaccustomed climate is frequently followed by pulmonary consumption.

If, however, an individual falls a victim to this disease on his native soil, the environment which previously acted as a healthful stimulus has now lost that influence, because the body in disease is generally less impressible to normal stimuli than it is in health. Under these circumstances a climate (without regard whether the patient, when well, felt best in summer or in winter) which is cold and bracing, the nature of which is probably diametrically opposed to the one in which he is accustomed to live, will work him the greatest benefit. Possibly the whole sum and substance of the climatic treatment of phthisis resolves itself into a question of making a powerful impression on the constitution of the patient by changing his surroundings—and this can only occur when the climate to which he goes is sufficiently antithetic to that from which he came. This view is in perfect accord with the fact that the best practical results are obtained by those physicians who send their patients to the cold elevated mountains, with air dry, pure, and more or less attenuated, and where they are compelled to take deep inspirations in order to satisfy the oxygen-want of their bodies. On the other hand, it is also true that consumptives who are accustomed to live in an elevated climate derive

most benefit when they sojourn in a suitable climate near the sea level. The truth remains, however, that the nature of the climate which is suitable for the individual in health would make a very poor guide in determining where to send him when he is suffering from pulmonary consumption.

From these and a few other exceptions which may be taken in regard to the scientific aspect of the volume, it may appear that it is only adapted to the wants of the practical physician. This would be a misconception of its true value. It is above the average standard of text-books on this subject, and we have only endeavored to point out instances which seem to us to be some of the weak spots in the composition of many of our modern text-books on practical medicine. It has already gone through two editions, and with the addition of a chapter on "The Dietary in Acute Disease and Malassimilation," and one on "The Management of Convalescence," this, the third edition, fully sustains the reputation which the book has created for itself. T. J. M.

PHOTOGRAPHIC ILLUSTRATIONS OF THE ANATOMY OF THE HUMAN EAR, TOGETHER WITH PATHOLOGICAL CONDITIONS OF THE DRUM MEMBRANE, AND DESCRIPTIVE TEXT. By B. ALEXANDER RANDALL, A.M., M.D., of Philadelphia, and HENRY LEE MORSE, B.A., M.D., of Boston. Philadelphia: P. Blakiston, Son & Co., 1887.

THIS portfolio of photographs contains twenty-five plates, upon which are, in all, seventy-five impressions, illustrative of the anatomy of the human ear, as set forth in the title. In plan it resembles the photographic atlas of Rüdinger (Munich, 1866–1875), parts of which have been edited by Dr. C. J. Blake, of Boston, and published in this country in 1874. In execution, variety, and number of plates, however, this far exceeds any atlas of its kind yet laid before students of the ear. In the composition of the work, the authors have availed themselves of access to the private collection of Dr. C. J. Blake, the private collections of Politzer, in Vienna, Dr. C. H. Burnett, in Philadelphia, and the Museum of the College of Physicians of Philadelphia, where they selected the best of the aural specimens among the preparations of the Politzer and Hyrtl collections which the College has possessed since 1876. Some of the results of their work the authors now present to the public, believing, very justly we think, that they are thus able to submit points of interest shown by no single collection. As the essential value of photography is in its accuracy, they have entirely abstained from retouching the negatives. Some "blocking out," however, has been done, in the interest of neatness and contrast.

"All of the photographs were taken by the authors themselves, under varying conditions as to light, etc., as many of the specimens could not be removed from the Museum, to which they belonged, and some of them had to be photographed through glass—conditions greatly increasing the difficulty of obtaining entirely satisfactory pictures."

Among the photographs of normal specimens, while all are excellent,

we would especially note No. 16, "Drum membrane, ossicles, etc., × 2," viewed from within, and No. 17, "Infant's annulus tympanicus, drum membrane, malleus, and incus, × 4," also viewed from within, as being extremely instructive as to the relations of the various parts of the middle ear to one another. Among the photographs of pathological specimens of the ear, we would specially note the instructiveness of No. 58, "Greatly indrawn membrana tympani, in profile, × 3," and No. 59, "Cicatrix indrawn, and fast to promontory, × 3." Among the "microscopical preparations," are to be noted specially No. 68, "Transverse section of Eustachian tube, × 16," No. 71, "Malleo-incudal joint, × 18," No. 74, "Single turn of cochlea of child, × 30," and No. 75, "Corti's organ, × 120." This latter is accompanied by an excellent ideal diagram of a transverse section through the modiolus and the scalæ, giving, of course, the relation of the various parts of the percipient organ to one another.

We have examined this portfolio of photographs with genuine pleasure and much profit, and can heartily recommend it to all who wish to refresh their memory, or to study, for the first time, the highly important anatomy of the ear. As a means of demonstration to a class, these photographs cannot fail to take a high place as supplementing and enforcing the instruction given upon the natural specimens themselves.

C. H. B.

SYPHILIS. By JONATHAN HUTCHINSON, F.R.S., LL.D., Consulting Surgeon to the London Hospital and to the Royal London Ophthalmic Hospital; Vice-President of the Royal College of Surgeons. With eight chromo-lithographs. 16mo. pp. xii. 532. Philadelphia: Lea Brothers & Co.

THE publishers of this series of clinical manuals are to be congratulated upon having obtained one so admirably fitted as is Mr. Hutchinson to treat the subject of syphilis. An ardent student in many fields, and a prolific writer in them all, it is rarely the case that one at his time of life is willing to sit down and construct a special treatise. Yet, when one so fortified both by experience and study does write a book, it is all the more valuable from the weight of authority which properly attaches to it. In sitting down to read this book, therefore, the reader may do so with the confidence that he can place all the reliance in its views that can be given to any one man upon a subject in connection with which there are still many mooted points.

The arrangement of the volume is somewhat peculiar, it being divided into two parts. The first of these is systematic and didactic; the second consists of some two hundred and forty commentaries thereon, which include the history of many illustrative cases. By this plan, which we regard as very felicitous, the subject is gone over twice, and the dogmatic statements of the first part are enforced and elucidated by the second. Thus the practitioner who desires to examine into any particular point can turn to it in the first part, and readily find there, in a condensed form, the principles which he needs to aid him in making a diagnosis, and to guide him to appropriate treatment; and then at his

leisure he can inform himself as to the reasons upon which Mr. Hutchinson's views are based. Nor is it easy to fall into error as to our author's meaning. Every page gives evidence that it is from the pen of a practised writer, who has something to say, and says it in clear and unmistakable English. In these commentaries, too, a glimpse is obtained of the rich clinical experience Mr. Hutchinson has enjoyed, and of the careful and conscientious study by which he has utilized it.

Following the commentaries are several chapters dealing with important subjects still sub judice, and furnishing by no means the least valuable reading in the book. The first of these is on satellite sores, and with the prudence born of long observation, our author concludes that it is not wise, in the present state of our knowledge, to decide positively in those rare but important cases, in which a second sore makes its appearance during the course of a primary one, whether the inoculation takes place by lymph channels beneath the surface, or by the action of the virus upon the surface itself. Mr. Hutchinson has most frequently seen satellite sores when the original chancre has become acutely inflamed, and holds that they are essentially sores following a primary inoculation at a considerable interval of time, and owe their existence to something like pus-infection. They should be carefully distinguished from cases of multiple primary inoculation simultaneously appearing.

Chapter XVII. is devoted to the power possessed by syphilis of imitating other diseases. Mr. Hutchinson dwells upon the fact that there is hardly any disease, and more especially where the skin is involved, to which, under this peculiar modifying power, the term "syphilitic" cannot be sometimes added, but he cautions against being misled by this fact, into too resolutely holding to a diagnosis of syphilis based upon mere external characteristics. He shows that there are no evident peculiarities which will enable the surgeon to distinguish between some cases of simple rupia and those possessing a syphilitic element, and refers to cases of serpiginous ulceration of the throat, in which the diagnosis of syphilitic taint could not be maintained. The duration of the disorder, and the effect of treatment must, after all, be principally relied upon for information in many cases. This chapter is a most instructive and suggestive one on the imitative power of syphilis, and the limitations of it.

The delicate question of marriage after syphilis, is considered in the following chapter, and Mr. Hutchinson informs us that for twenty years past he has sanctioned the contracting of such engagements two years from the date of infection, when the patient has been thoroughly and successfully treated with mercurials. Perhaps no better hard and fast rule can be laid down. To extend the time as long as is done by some, is conducive to concubinage, and, therefore, does not tend to limit the spread of the disease, while preventing many marriages. Of course, where symptoms persist, or the chancre shows a tendency to recur, the rule does not hold good, but Mr. Hutchinson has never seen any reason to regret its adoption, and has met with ill consequences in but one doubtful case.

The remaining chapters are engaged with suggestions on the mode of investigating syphilitic cases and of recording their histories, with cautions concerning their diagnosis, the opinions of authors concerning the use of mercury, the diagnosis between cancer and syphilis, and on syphilitic affections of the throat.

The chromo-lithographs in the book are good, and an excellent index concludes a volume, which we, without hesitation, commend as a strong, thorough, and well-considered treatise upon a theme which must ever continue of vast importance to the practical surgeon, and which still includes problems of interest to be solved. S. A.

A TREATISE ON DIPHTHERIA, HISTORICALLY AND PRACTICALLY CONSIDERED; INCLUDING CROUP, TRACHEOTOMY, AND INTUBATION. By A. SANNÉ, Docteur en Médecine, Ancien des hôpitaux de Paris. TRANSLATED, ANNOTATED, and the SURGICAL ANATOMY ADDED. By HENRY X. GILL, A.M., M.D., LL.D., late Professor of Operative and Clinical Surgery in the Medical Department of the University of Wooster, at Cleveland, O. 8vo. pp. xxxi., 656. St. Louis, Mo.: J. H. Chambers & Co., 1887.

THIS work of 656 pages deserves to be accepted as a standard by the teacher, the student, and the thoughtful practitioner. The author, who was a student of Barthez and Trousseau, and, therefore, could not fail to be interested in the subject of diphtheria, has fully availed himself of his unusual opportunities for the study of that disease. The work is so comprehensive and each of its divisions so interesting that any attempt at a complete review would result in the writing of a treatise. But very few of the most important points can, therefore, be noticed.

The author holds, and we think rightly, that the morbid action in so-called membranous laryngitis (croup) and in pharyngeal diphtheria, are identical, "only its effects vary with the intensity of this same action and with the structure of the mucous membrane in which it is developed." Under the head of chemical characters of the diphtheritic membrane, the action upon it of various substances—the acids, mineral and organic, alkalies, alkaline salts, bromine, iodine, etc.—is considered, but nothing is said concerning that of pepsin, pancreatin, and trypsin. In passing, I may remark that extraordinary statements have been recently made concerning the solvent action upon diphtheritic membrane of a substance called papoid. Interesting statistics are given to show that tracheotomy is never the cause of thoracic complications. This is held to be proved by the fact that the greatest number of cases of broncho-pneumonia and pneumonia are found at autopsies made on the first and second days after the operation, an interval supposed to be too short for the development of the lesions. This important subject demands further study. Dr. Sanné criticises the observations of Bouchut and Labadie Lagrave with reference to the frequency of diphtheritic endocarditis, and holds with Parrot that this complication is very rare.

The interesting statement is made that the author has not known a single case of diphtheritic albuminuria to become chronic. Another peculiarity of this form of albuminuria is that it is not accompanied with dropsy, as in scarlatina, and is explained by Sanné to be due to the fact that in diphtheria, as a rule, but one kidney is attacked, while, in scarlatina, as a rule, both are involved. In 224 cases of diphtheritic albuminuria he observed but 7 cases of dropsy.

The following statement is difficult to understand: "When paralysis becomes general we are often confronted by grave symptoms, such as excessive prostration, continual tossing," etc. Muscular prostration, in cases of general paralysis, is understood, *va sans dire*, to use the language of Sanné, but "*continual tossing*" is hard to conceive of under such circumstances.

The chapter on the nature of diphtheria contains much of interest. The author does not believe that the disease is, at the beginning, local and that the system is poisoned by absorption from the primary focus, but holds that it is an affection which is "*totius substantiæ*, primarily general."

The words "infection" and "infectious" are often used in this work to imply malignancy. For example, on p. 370, "its infectious nature is also proved by the gangrene, the adenitis, the albuminuria, and the paralysis." As the term is used in English such facts have nothing to do with proving infection.

The sections on treatment, medical and surgical, form a prominent feature of this work, but the want of space forbids more than the statement that they are unusually full and comprehensive.

In view of the fatal cases of poisoning by potassium chlorate that have been reported by Jacobi, Hofmeier, and others, a word of warning should have been given concerning the careless use of this drug.

A few words with reference to the work of Dr. Gill, the translator and annotator of this work. He has supplied an important defect by adding a short section on intubation, which appears, in its proper place, at the end of the work. There seems to be no good reason why the section on the surgical anatomy of tracheotomy, also added by Dr. Gill, should not have been placed in the same situation instead of at the beginning of the book, where it is certainly out of place.

Dr. Gill deserves the thanks of those who are not familiar with French for making this book accessible to them. The laborious work of translation has been, on the whole, well performed, but is marred by certain inaccuracies which should be expunged from the next edition. For example, *école de médecin*, p. 44; *société medical*, p. 51; *ecchemoses* and *ecchemotic*, p. 79, whereas ecchymosis is correctly written on pp. 106 and 112. Buhl is persistently written Bühl. The word "concretion" is frequently used to signify membrane, being a too literal translation of the French *concrétion*. The same word is used instead of clot on p. 111 where "fibrinous *concretions* in the right heart" are spoken of. The expression, "atmosphere of connective tissue," on p. 133 is not to be commended. The word "only" is often used for "except," the result being to render some sentences almost unintelligible to those who are accustomed to correct English. For example, "thus it (gangrene) is not encountered *only* in the most severe forms." "It does not pass in a perceptible manner into the saliva *only* when given in quite large doses." It is a question whether the annotations would not appear to better advantage in foot-notes than in the following manner: "Tender age should be an absolute contraindication (true)," p. 397. "It is not sufficient from one fortuitous success that therapeutics be authorized to use dangerous and depressing means (hive syrup is the same thing)," p. 397. This is very obscure and reminds one of the line from an old play, "Egad, the interpreter is the harder to understand of the two."

A more careful reading of the proofs will enhance the value of a second edition. Until that appears, and perhaps afterward, readers of French will have recourse to the original. F. P. H.

PUBLIC HEALTH. THE LOMB PRIZE ESSAYS. Award made at the Thirteenth Annual Meeting of the American Public Health Association, Washington, D. C., December 10, 1885. With an Appendix. Second edition. 8vo. pp. 196. Concord, N. H., 1886.

1. HEALTHY HOMES AND FOOD FOR THE WORKING CLASSES. By VICTOR C. VAUGHAN, M.D., Ph.D., Professor in the University of Michigan.
2. THE SANITARY CONDITIONS AND NECESSITIES OF SCHOOL-HOUSES AND SCHOOL-LIFE. By D. F. LINCOLN, M.D., of Boston, Mass.
3. DISINFECTION AND INDIVIDUAL PROPHYLAXIS AGAINST INFECTIOUS DISEASES. By GEORGE M. STERNBERG, M.D., Major and Surgeon U. S. Army.
4. PREVENTABLE CAUSES OF DISEASE, INJURY, AND DEATH IN AMERICAN MANUFACTORIES AND WORKSHOPS, AND THE BEST MEANS AND APPLIANCES FOR PREVENTING AND AVOIDING THEM. By GEORGE H. IRELAND, of Springfield, Mass.

THE four essays which make up this volume were selected as the best out of many offered in competition for the prizes offered by Mr. Henry Lomb, of Rochester, N. Y., through the American Public Health Association, for practical papers on the subjects presented. The volume has been prepared in its present handsome and durable style, which is uniform with the annual volumes of the Association, for public and private libraries, but a cheap pamphlet form has been printed, and is sold at a nominal sum, in order to secure a wide distribution. The object of these essays is to present in clear and attractive form reliable information upon practical topics of value to all classes of society, but of especial importance to school children and the working classes, and thereby to educate the masses in useful sanitary truths.

The first essay on *Healthy Homes and Food for the Working Classes*, by Dr. Vaughan, which comprises by far the largest part of the volume, describes clearly, without going into unnecessary detail, the features of a healthy dwelling-house, and the various substances which constitute wholesome articles of food. The first section gives sensible advice with respect to the principles and rules to be observed in building a home. Directions are given for selecting the location of the house, for the plan, materials, and manner of its construction, for heating and ventilation, for the water supply, disposal of waste, and also for the care of the house. Hints on buying or renting a house have not been omitted.

The second section, on healthy food, has been treated briefly, though without omitting anything of practical value, and forms a common-sense exposition of an important subject which generally is too scientifically

handled for the comprehension of the masses. It is interesting and useful reading, and cannot fail to be properly appreciated by those for whom prepared.

The second essay, on *The Sanitary Conditions and Necessities of School-houses and School-life*, covers thirty-six pages, into which is condensed a fund of information upon school-hygiene, such only as might be expected from so experienced and competent an authority as Dr. Lincoln. The principal subjects which come under consideration are: Site of the school-house, plan and arrangement of the building, ventilation and heating, sewerage, hygiene of the eye, school-desks and gymnastics, affections of the nervous system, contagious disease, and sanitary supervision. The statement of principles and facts contained under each of these divisions of the subject, is very full, and is presented without discussion, which would be out of place in a book of this character. The whole essay is quite abreast of the latest knowledge on the various topics treated of, and forms an authoritative and handy guide on school-hygiene.

In the third essay, on *Disinfection and Individual Prophylaxis against Infectious Diseases*, Dr. Sternberg follows pretty closely the conclusions reached by the Committee on Disinfectants of the American Public Health Association, and published in their report. While he restricts the meaning of the word disinfection to the destruction of infectious material, he wisely does not limit the practice of disinfection, in the popular sense of the word, so that disinfection is considered in its broad sense, or that in which the word is commonly used, as well as in its restricted or scientific sense.

After explaining the tests of disinfection, the author proceeds to give reliable, practical directions with reference to the use of disinfectants, and the best methods of disinfection. Disinfectants are arranged in two groups: those which have the power of destroying spores, and those which are effective in the absence of spores, and only those agents are named which are known to be of great practical value.

Section second, which treats of individual prophylaxis against infectious diseases, forms a very valuable part of the essay, inasmuch as it contains a condensed and plain and intelligent statement of the measures of individual precaution against those infectious diseases which are most common and most fatal. The whole essay is of great practical value, and its wide circulation will tend to correct false and dangerous views of a subject which some time or other more or less intimately concerns every member of a community.

The last essay, on the *Preventable Causes of Disease, Injury, and Death in American Manufactories and Workshops, and the Best Means and Appliances for Preventing and Avoiding them*, is a tract which should be in the hands of every manufacturer and workman in the land. It is a statement, in outline, of facts and principles to be observed for the protection of the health of the workman while engaged in his avocation, but concerns equally the employer and employé. The subjects treated of are the location and construction of buildings, the construction and management of elevators, fire-escapes, water-closets, etc., ventilation, light, heating, lighting, water-supply, removal of dust, prevention of fires, handling of goods, care in the management of motors, and avoid-

ance of accidents, noise, seating of workmen, aids for the injured and sick, precautions with regard to contagious diseases, the handling of poisonous substances, hygiene of the person and premises, etc. The treatment of the subject is by no means exhaustive, nor is it intended to be so, the aim being rather to furnish hints upon a branch of inquiry affecting the health and comfort of the workman, which has hitherto been much neglected in this country.

The four essays which comprise this volume, taken collectively, form a handbook of useful information upon questions of great popular interest. The selection of the topics has been judiciously made, and the essays have been written by authors whose familiarity with the subjects and appreciation of the aims of the treatise, have enabled them to produce a reliable work of a highly meritorious character, which every one may consult with profit. The book is handsomely printed on the best paper, and is bound uniformly with the annual volumes of the Association. A copious index adds to its completeness. W. H. F.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE. UNITED STATES ARMY. AUTHORS AND SUBJECTS. Vol. viii. LEGIER—MEDICINE (Naval). 4to pp. [10] 1078. Government Printing Office, Washington.

IN his prefatory note addressed to General Moore, Dr. Billings tells him that this volume contains 13,405 author-titles, representing 5307 volumes and 13,205 pamphlets, with 12,642 subject-titles of separate books and pamphlets, and 24,174 titles of articles in periodicals. These simple figures do more, perhaps, to convey to the intelligent reader an idea of the scope and magnitude of the volume than any mere eulogistic phrases that the reviewer can throw together. We say eulogistic, for the reason that no one can have anything like a just appreciation of this and the preceding volumes of the Index-Catalogue, and use other than words of eulogy. Praise for the scheme which led to so monumental a plan as that of gathering together in one place all medical literature, and praise for the energy and ability which have carried on the work, and by means of this catalogue made it available for the needs of every scientific physician.

But should any one find the figures given by Dr. Billings insufficient to convey a definite idea of the value of this particular volume, let him turn over some of its pages with us and take at random a few titles upon which to base an estimate. Five pages and a half, or eleven columns of print are required to contain the titles of articles bearing upon the anatomy and the diseases of the crystalline lens, while twenty-two columns are occupied with leprosy, and twelve with leukæmia. Those contained on pages 177 to 219 are required to note the literature of lithotomy and lithotrity, and that pertaining to the liver stretches from page 223 to page 294. It were easy to extend this kind of analysis, but to do so would serve no useful purpose, and would only tend to fatigue our readers. But few among them are unaware of the character of the

catalogue, and those few will have learned from what has been already said, enough as to the amount of ground covered by this mere list of the great medical library at Washington. That library is one of the peaceable fruits we owe to the turmoil, the terror, and the tears through which we passed by the War of the Rebellion to secure the establishment of the State. It is one of those way marks which distinguish our enfranchisement as a nation, and must remain a monument to which the medical men of the country can point as the result of the energy, the foresight, and the pluck which belonged to those who contended with the issues of the great civil war.

To Dr. Billings the issue of each successive volume must be an event of importance, and it is one upon which all who know something of the part he has borne in bringing both library and catalogue into existence will congratulate him. But we cannot lay down our pen without once more crying out to make haste. Time is very short. Many, very many, have died with their catalogues incomplete, and would members of Congress listen to us they would at once appropriate the funds which would permit of the publication of the remaining volumes without delay. S. A.

DRUITT'S SURGEON'S VADE-MECUM. Edited by STANLEY BOYD, M.B., B.S. Lond., F.R.C.S. Eng., Assistant Surgeon and Pathologist to the Charing-Cross Hospital, and Surgeon to the Paddington Green Hospital for Children. Twelfth Edition. 8vo. pp. xvi. 985. Philadelphia: Lea Brothers & Co., 1887.

AN army of surgeons will welcome an edition of "Druitt" brought up to the times, for we believe that it would be difficult to name any one book to which a larger number of the profession owes its first impressions of the science and art of surgery, than this very popular text-book.

A somewhat careful examination of the work leads us to believe that Mr. Boyd does not exceed proper limits when he claims to have made such extensive revision of the book as to amount well-nigh to its rewriting. Every page bears witness to the careful and thorough editing to which it has been subjected, and the book now stands upon the level of the ground occupied by modern surgery. Very wisely, the chapter upon diseases of the eye has been omitted, one on its injuries being substituted therefor, and the editor has endeavored to keep down the size of the volume by every means in his power, but he has added sections on surgical diagnosis, and given much larger space to pathology, while he has added no less than seventy-three new woodcuts. Among these last we notice some pictures of ligated arteries which aim at representing the wound just as it is seen in the cadaver. The series impresses us as most valuable, for while no attempt is made to furnish anatomy made easy by diagrams, the drawings are carefully made to present those layers and parts which appear in operations upon the dead body. They are accurately drawn and do all that illustrations can do to facilitate the performance of the surgical procedures involved. We do not hesitate to say that Mr. Boyd has discharged his task well, and has given to the

medical public, under the title of an old favorite, a thoroughly trustworthy and reliable epitome of surgical practice, as at present pursued. He is also very modest in quoting the standard works to which he is under obligations. The make-up of the book is excellent, though we incline to think that a larger page would make a less portly volume, and one that could, therefore, be more easily held in one hand.

S. A.

DU DELIRE CHEZ LES DÉGÉNÉRÉS. Par le DR. M. LEGRAINE. Ancien interne des Asiles d'Aliénés de la Seine. 8vo. pp. vi. 290. Paris: A. Delahaye et E. Lecrosnier, 1886.

INSANITY IN THE WEAK-MINDED. By DR. M. LEGRAINE.

IN an extended service at the great asylum of St. Anne, in Paris, under the direction of Prof. Magnan, the author has had exceptional opportunities for the study of insanity. The subject of this monograph is the mental derangement consecutive to bad hereditary tendencies. Many persons are predisposed to mental disease from their birth; they display degenerate types of mind. Some form of cerebro-spinal disease, or of insanity, or some toxic influence in the parent, results in a mal-development in the brain of the child. The child may be an idiot, or an imbecile, or simply weak-minded and stupid; or in youth or adult life he may show some form of mental derangement, becoming, perhaps, actively insane, or being merely eccentric and ill-balanced. The hereditary weakness of mind predisposes the individual to the development of insane delusions, and these taking possession of the weak-minded person, manifest characteristic forms.

In the first part of this monograph the mental condition of idiots, imbeciles, and the feeble-minded is very carefully discussed, and a valuable discriminating analysis of the varying mental incapacity of these unfortunate persons is given. In the second part insanity of hereditary origin is fully considered. In the term "*folie des dégénérés*" the author includes the various conditions, termed in English monomania, a term which is giving place to *paranoia*, a far better equivalent for the German name, Primäre Verrücktheit. The most frequently observed form of this affection is chronic insanity, with delusions of persecution. The characteristics of *folie des dégénérés*, according to Legraine, are first "obsession"—that is, the patient is completely dominated in a certain line by an insane delusion; secondly, "impulsion"—that is, the patient is impelled irresistibly to the expression of his delusion in words or acts; thirdly, complete knowledge of his delusion, and the impulses to which it leads; fourthly, a concomitant distress, which gives emotional quality to the delusion; and, lastly, a consecutive relief, which follows the carrying out of the impulse. These will be recognized as characteristics of paranoia. The various monomanias, kleptomania, dipsomania, pyromania, etc., are very properly considered in this connection as traceable to defective cerebral development; and reasoning mania and moral insanity are regarded as due to the same cause. A large number of carefully recorded histories of cases are given in illustration of the positions advanced by the author, and form a valuable part of the work.

The book is based upon accurate clinical observation, and although exceptions may be taken to some of its statements, it deserves the careful study of all who are interested in the study of insanity. M. A. S.

THE STUDENT'S GUIDE TO DISEASES OF THE EYE. By EDWARD NETTLESHIP, F.R.C.S., Ophthalmic Surgeon to St. Thomas's Hospital, etc. Third American from the Fourth English Edition, with a Chapter on Examination for Color Perception, by WM. THOMSON, M.D., Professor of Ophthalmology in the Jefferson Medical College. With 165 illustrations. Royal 12mo. 475 pages. Philadelphia: Lea Brothers & Co., 1887.

"LET well enough alone" is a precept the wise physician is very apt to follow; and it would not have surprised us if the author had rested upon it with reference to this work, which the reviewer of the first edition so justly pronounced, "the best manual on ophthalmic surgery for the use of students and busy practitioners." But, with Mr. Nettleship, no book is "well enough" if it can possibly be improved, and he has repeatedly allowed his popular text-book to remain months out of print, in order that the new edition might in every way be brought abreast of the time. In the extent of additions made to the text the present edition surpasses all its predecessors. The author, in his preface to the fourth English edition, states, "with every wish to avoid overloading, I have been obliged to enlarge the book by about thirty pages." But in the American edition this enlargement amounts to sixty pages.

The additions made are to be found in all portions of the work, and are not mere accretions but thoroughly incorporated portions of it.

Among the more extensive additions is a detailed account of "retinoscopy" both with the concave and plane mirror. Of the value of this procedure the author says, "Retinoscopy is a valuable means of objectively determining the quantity of any error of refraction, and as it is more easily learnt, and, on the whole, more accurate in its results than estimation by the direct method, it has, in the hands of many of our students and assistants, almost displaced the latter method as a preliminary to testing the patient with the trial lenses. For the quick discovery of very slight astigmatism, and of the direction of the chief meridians in astigmatism of all degrees, retinoscopy probably excels all other methods." So popular is retinoscopy likely to become, that the author fears that it, by preventing the mastery of "the more difficult 'direct method,' may tend to lower the present high quality of English ophthalmoscopic work." This fear may be justified by the state of affairs in London, where the "direct method" has not heretofore been very much cultivated; but it could not apply to this country, where the "direct method" is often practised to the almost total exclusion of other forms of ophthalmoscopic examination.

While most of the few errors and inaccuracies of former editions have been corrected, we notice the retention of a very glaring one in the second sentence of Chapter I., which reads: "If the deviation in passing from vacuum into air be represented by the number 1, that for crown

glass (of which ordinary lenses are made) is 1.5, and for rock crystal ('pebble' of opticians) 1.66. Such a number is the refractive index of the substance." Now, if the refractive index of a vacuum be taken as 1, that of air is represented by 1.000294, and that of crown glass by about 1.54; and the deviation of the ray of light passing from vacuum into air of ordinary density is 0.000294, and passing from air into crown glass 0.54, a very different proportion from that mentioned. As the ideas of the student in this direction are apt to be hazy enough anyhow, any additional fog transmitted from the mind of the teacher is likely to cause a total obscuration of the principle involved.

No important alteration has been made in Dr. Thomson's chapter on the practical examination of railway employés as to color-blindness, etc.; but since it was first published abundant experience, at the hands of many corporations, has demonstrated its superiority to other attempts in this direction, and illustrated the importance of bringing scientific tests into practical popular form.

The present edition has more cuts and is printed with better type than the former editions. Its fifteen page index makes it a ready reference book for the busy practitioner, as well as a "student's guide." And this is a great advantage, for it is always more satisfactory to use for reference a book with which one has become familiar by previous study.

E. J.

A Practical Treatise on the Diseases of the Hair and Scalp. By George Thomas Jackson, M.D., Instructor in Dermatology in the New York Polyclinic, etc. Pp. 356. New York: 1887.

The author of the work before us has brought together and classified a good deal of valuable material, which before was to be found only in general literature, and for this labor he is entitled to the thanks of the profession. The anatomy, physiology, and hygiene of the hair are first considered, then come long chapters devoted to the essential diseases, including canities and other changes of color, the several varieties of alopecia, hypertrophy of the hair, and sycosis. Next follows a full account of the parasitic affections, and finally the diseases of the hair due to secondary diseases of the skin, such, for example, as syphilis and lupus. The text throughout is characterized by plain statements, intelligible alike to layman and physician, and is largely free from discussion and theory. Authorities and journal literature are widely quoted and judiciously utilized, the work of the past twenty-five years being well represented. The views expressed on the whole are in accord with those of the leading dermatologists of the present day.

The most interesting chapter, perhaps, to the general practitioner, is that on the removal of superfluous hair, especially from the face of women, by means of the needle and electrolysis, which is now occupying so much attention both here and abroad. The directions given are brief, but practical, and in the main judicious, although we think the author refers too lightly to the scarring that follows the operation, and which, in some cases, proves in itself a disfigurement.

The volume is illustrated here and there by wood-cuts, taken mainly

from well-known sources, most of which we are compelled to say, are crudely reproduced, and are not in keeping with the rest of the book. A notable omission is that of drawings representing the fungi to which the vegetable parasitic diseases of the scalp owe their existence.

The volume closes with a valuable bibliography, including more than six hundred references to the subject-matter of the work, admirably arranged. We commend the book to all those interested in the hair.

A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs. By Samuel W. Gross, A.M., M.D., LL.D., Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia., etc. Third edition. 8vo. pp. 172. Philadelphia: Lea Brothers & Co., 1887.

This book of Dr. Gross's is too well known to the profession to call for extended comment. Standing in great measure alone, it treats of matters which can only be elsewhere found scattered through many larger works, and its importance as filling a niche hitherto in great measure unoccupied is evidenced by the demand which has called for a new edition. Further confirmatory evidence of the same kind is to be found in the fact that the book has been recently translated into the Russian language.

This third edition has been rewritten and the subject brought up to the present time, so that the reader may safely conclude that nothing of value touching the theme of which it treats will be found omitted from its pages. Indeed, one of the principal features of the book is the demonstration it incidentally affords of the small amount of real scientific knowledge we possess upon a topic concerning which there has been much speculation, and but little careful scientific observation. What we do know is contained within this modest-sized volume, what we may hereafter know as the result of careful study, we may confidently expect will be shown by the future editions of it, sure to be demanded.

S. A.

Elements of Pharmacology. By Dr. Oswald Schmiedeberg, Professor of Pharmacology, etc., in the University of Strassburg. Translated by Thomas Dixson, M.D., Lecturer on Materia Medica in the University of Sydney, N. S. W. 8vo. pp. x. 223. Edinburgh: Young J. Pentland, 1887.

This book is, as is stated in the preface, intended as a pharmacological commentary on the second edition of the German Pharmacopœia and contains short accounts of the action of the more prominent drugs in that work, rather than any attempt at directing the physician in his combat with disease. It is quite copiously illustrated by tracings showing very beautifully the influence of several of the drugs on the pulse and respiration, and contains the records of some experiments of great value to the general practitioner. One of the most important of these is the warning which is sounded against the too free use of chloroform in the pregnant woman, and the author states that according to the

experiments of Runge, "death of the uterine contents may be caused by a single deep chloroform narcosis." This is believed to be due entirely to the lowered arterial pressure present, combined with the depressed heart, the result being reached by the interference with the carrying of oxygen to the placental tissues in sufficient amount. Ether is to be preferred to chloroform therefore, for evident reasons, although, in the opinion of Schmiedeberg, this drug must be used with great care under such circumstances. Scarcely less interesting to the physiologist are the pages devoted to the consideration of the neutralization of the blood by hydrochloric acid and the entire recovery of the animal under the use of carbonate of soda.

Instances of useful and interesting reports might be quoted *ad libitum* did space permit, but as we are thus limited we can only refer the reader to the book itself, which will well repay careful study.

H. A. H.

GUIDE TO THE ADMINISTRATION OF ANÆSTHETICS. By HENRY DAVIS, M.R.C.S., Administrator of Anæsthetics to St. Mary's and the National Dental Hospitals. London: 1887.

THERE is no excuse for the appearance of this little book, except as a note-book for the author's classes. The subject is too large to be thus undertaken. Of its fifty-two pages, eight are taken up with the subject of cocaine. About seven more are devoted to descriptions and cuts of inhalers, and still four and a half more to an apparatus for combined use of ether and nitrous oxide, which can be used only in a hospital. The utmost brevity will not excuse the omission of some points in physics, such as the relative weight of anæsthetic vapors and air, the effect of a current of air in increasing the amount of vapor carried, the wide variation in amount of vapor which air will take up at different temperatures. A knowledge of these things is indispensable to the junior, or to any, anæsthetizer.

Since the A.-C.-E. mixture is mentioned as having been "tested and recommended," we should like to have had an expression of opinion as to its merits, and to learn to what extent it is used in England. We are told that "at the Middesex Hospital a mixture of ether one part, and chloroform two parts, finds favor, and has been much employed in that institution."

Short as this "guide" is, we must protest against one of its teachings. It says in regard to the administration of chloroform during the struggling stage: "It is well to remember that the more continuously the drug is administered at this stage, the less the patient struggles." Possibly true, for the struggles are likely to cease in death! We are strongly of opinion that this teaching is positively dangerous. During struggling is just the period when inhalation should be interrupted. Intra-thoracic pressure is then much increased, and a sudden deep inspiration, after suspended respiration, may carry air into the chest so heavily charged with vapor as to prove fatal. Many deaths have occurred in this stage of anæsthesia, and the greatest care is required during it. A "long-felt want" in the profession probably exists, but this book will not satisfy it.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

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GLEDITSCHINE, OR STENOCARPINE.

An explanation of our abstracts of papers concerning the newly invented alkaloid, said to be obtained from the leaves of the "tear blanket tree," may perhaps be due to our readers. In the summary of the last issue of this JOURNAL there appeared abstracts of two papers published in the *Medical Record* of the previous month—the first of these by DR. CLAIBORNE, giving an account of the new marvel, including the incidents of its discovery; and the second by DR. H. KNAPP, consisting of a characteristically elaborate and full investigation of the new analgesic from the physiological standpoint chiefly. When these investigations appeared suspicions were soon aroused, and it was suggested that precisely similar effects were produced by a combination of cocaine and atropine, and chemical examination of the solution confirmed this view of the origin of the new alkaloid. That medical journalists and practitioners should be deceived by articles appearing in contemporaries is not surprising, since they must accept as true reports of experimental and clinical work, not on their face improbable. Especially in this era of marvels, who can set bounds to discovery, or limit the results of applied science? If the alleged new alkaloid is finally shown to be fraudulent, we may obtain a few crumbs of comfort, at least, in the demonstration of the analgesic and hypnotic action of the combination.

TREATMENT OF SYPHILIS.

In the issue of the *Bulletin Gén. de Thérapeutique* of October 30th we find a useful paper on the treatment of syphilis, by PROF. VERNEUIL. As a representative of the more conservative of French surgeons, Verneuil speaks with authority on such topics. The conclusions at which he arrives harmonize with the opinions most generally held. He maintains the superiority of mercury. As respects the diagnostic value of the two agents—iodides and mercury—he never decides the question of specific lesion or not, except from the results of a trial of mercury. In three examples of old syphiloma of the testicle—cited for illustration—the iodide of potassium in massive doses failed to disperse the tumor, but mercurial treatment effected a cure in a few weeks, thus demonstrating the nature of the neoplasm.

Professor Verneuil does not advocate the huge doses of iodide of potassium now in vogue—2 to 3 grammes (30 to 45 grains) per day being his maximum—except in cases of rapidly destructive ulcerations of the nares, veil of the palate, and similar lesions, and even then in quantity not exceeding 75 or 96 grains *per diem*. He has never favored the conjoint administration of mercury and iodides. He prefers to give mercury by itself, and associated with remedies to improve the general state of the patient. He has occasionally made use of the combination of these remedies in slowly developing secondary or tertiary accidents when mercury does not act well, or has not been given at all. Under such circumstances he prescribes in the simplest way ¾ grain of proto-iodide of mercury and 15.5 grains of potassium iodide.

Mercurial frictions, although, in some cases, acting energetically, do not commend themselves to his judgment. When he has employed inunction, he has not dispensed with the internal administration of the protoiodide or some other mercurial, in small doses. Nor has he practised the method of subcutaneous injection of mercurials, which often cures, apparently, in twenty to thirty days. He holds that the most certain curative results are obtained by the slow saturation of the organism as effected by the stomachal administration, rather than by sudden impression.

For the local treatment of syphilitic ulcerations, mucous patches, etc., the early manifestations of the constitutional state, he employs nitrate of silver, or chloral solutions, topically, in conjunction with the use of mercury internally.

Sparteine in Cardiac Diseases.

Maslowsky (*Rouss. Med.*, No. 13, 1887, Ibid.), at the clinic of Prof. Kouznetzow, to test the conclusions of Sée, has experimented with sparteine in cases of uncompensated cardiac lesions. He finds that sparteine in moderate doses increases the action of the heart, and that the effects are quickly produced. Contrary to Sée, he does not find that the heart-beats are made entirely regular. The quantity of urine is increased. No cumulative effects are observed.

Elimination of Mercury.

Apropos of the mercurial treatment of syphilis, we quote some observations by Meichaïlowsky, on the elimination of mercury as influenced by the *route* by which administered.

When mercury is applied by friction, it appears in the urine in two hours after the first application; but when lanolin is used as the vehicle, the urine furnishes no reaction until six frictions have been made. In general, it can be said that the presence in the urine of mercury given by inunction, is in a direct ratio with the number of applications, and, as above stated, the character of the vehicle used.

When mercury is administered by subcutaneous injection, excretion by the kidneys goes on in the same manner as when the drug is rubbed into the skin. The simultaneous administration of iodide of potassium lessens the excretion considerably.

It has been ascertained that the urine of patients in the vicinity of those

receiving mercurial inunctions, after thirty-three or thirty-four days, manifests the evidences of mercurial impression.

It was demonstrated, also, that warm-air baths had an extraordinary effect in increasing the elimination of mercury, and when salivation had occurred, it was notably diminished also. After twenty to twenty-five air baths the most rebellious stomatitis rapidly disappeared.—*Bull. Gén. de Thérap.*, October 30, 1887.

Action of Acetanilide (Antifebrine).

In the journal above quoted, are the conclusions of Teutschinsky in regard to the actions of acetanilide. He finds that it lowers the temperature, lessens the pulse-rate, and increases cutaneous and renal action. The duration of the effect is from six to nine hours—the maximum being reached in about four hours after its administration. Repeated daily doses of thirty grains do not have a cumulative effect, and the exacerbations of fever are not accompanied by such ill effects as cyanosis, rigors, and collapse.

Insufflation in Whooping-cough.

The following combination has acted very favorably in whooping-cough:

Benzoin in powder and salicylate of bismuth ℈iv of each; quinine 15 grains. This is thoroughly incorporated and reduced to the finest powder. By means of an insufflator, or a suitable tube, merely, the powder is blown through each side of the nares into the posterior nares and pharynx several times a day.

A Gargle in Stomatitis.

The following formula is an excellent gargle in cases of stomatitis, caries of the teeth, etc.:

Tannin ʒij; tincture of iodine ℈iv; iodide of potassium ℈j; tincture of myrrh ℈iv; rose water ʒviij. A dessertspoonful in a small glassful of warm water is used to wash the mouth thoroughly every morning.

The Treatment of Diphtheria.

An elaborate paper on the management of diphtheria by Dr. G. Guelpa, is concluded in the issue of October 30th, of *Bulletin Gén. de Thérap.* The special point brought forward by the author is "*irrigation, the most frequent possible.*" He has employed a solution of the perchloride of iron for this purpose, chiefly from habit, but other solutions—of lime, carbolic acid, and boric acid—may, he admits, be quite as efficient—may be more efficient—for the agent used is quite secondary, the main consideration being the frequent irrigation. Dr. Guelpa advocates the early and persistent, and almost continuous application to the parts threatened with an extension of the diphtheritic process.

Cauterizations are negatived. Perchloride of iron solutions, 5 to 10 per 1000 in strength, have proved most successful in a long series of cases of different periods. The irrigations are practised every quarter of an hour during

the day, and every half hour at night, in the milder cases with moderate force through the fauces and nares, as is done with the nasal douche; but when the resistance to the passage of the fluid requires it, the hand-ball should be used to pump the fluid through. When irrigation is practised early and efficiently, it is comparatively rare to find the disease spreading to neighboring parts. It is relatively easy to bear by the patient, and to apply by the attendants.

As Dr. Guelpa submits many cases illustrating the utility of the method, there can be little doubt of its value. There are no difficulties in the way. As it is the irrigation rather than the character of the medicament that determines the result, the practitioner has a wide choice of materials, and, hence, those objecting to the disagreeable iron chloride, can employ other medicaments. Probably, those agents having a solvent action, as papaïn, lactic acid, lime, etc., can be used with the expectation of the best results. *It is the early, frequent, and copious irrigation that accomplishes the important curative results obtained by Dr. Guelpa's method.*

A New Hypnotic.

Amylen-hydrat (*Dimethyläthylcarbinol*, $C_5H_{12}O$) has been investigated by Prof. J. v. Mering, in Strassburg (*Centralblatt für die gesammte Therapie*, October, 1887), who has found it to be a hypnotic of some value. 15.5 grains dissolve in an ounce of water. It has a somewhat pungent and camphoraceous taste. In physiological action it resembles paraldehyde, and in power of effect ranks between this agent and chloral. Numerically stated, he places them in the following order: Chloral hydrate 1, amylen-hydrate 2, and paraldehyde 3.

Amylen-hydrate can be given by the stomach or by the rectum. Dr. v. Mering advises the following formula for rectalinjection: ℞. Amylen-hydrat. 5; mucil. acaciæ 20; aquæ destil. 50.

For cases of insomnia, due to, or accompanied by pain, he combines morphine with it.

Acetanilide as a Nervine.

Influenced by the observations of Dujardin-Beaumetz, Dr. Seifert, of Würzburg, has essayed the use of acetanilide in various painful maladies. The results of this trial are given in a paper published in the *Wiener. med. Wochenscrift*, No. 35, 1887, an abstract of which is given in the *Centralblatt für die gesammte Therapie* for October, 1887. In two cases of migraine it proved to be very effective in eight grain doses, and it was, also, equally useful in six cases of general headache with an anæmic basis. In three cases of trigeminal neuralgia Dr. Seifert had excellent results. For the most part, his observations are in accord with those of Dujardin-Beaumetz.

Antipyrin in Chorea.

Dr. Wollner (*Müncher med. Wochenschrift*, No. 5, 1887, in the *Centralblatt für die gesammte Therapie* for October, 1887) has had a good result from the administration of antipyrine in a case of severe chorea, which had resisted many approved remedies.

MEDICINE.

UNDER THE CHARGE OF

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CONTRIBUTION TO THE DIAGNOSIS OF DISEASES OF THE STOMACH.

RIEGEL (*Zeitsch. f. kl. Med.*, B. xii. H. 5, 6, 426–447) contributes some observations additional to those which were published a year ago in the same journal, and of which an abstract appeared in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES for October, 1886. Another year's daily experience has confirmed him in the employment of the procedure which he then detailed.

The author then enters upon the consideration of the cases of chronic gastric disturbance observed during the last year; 134 in all, with 1709 chemical analyses. Of these, 16 cases were instances of carcinoma, on 5 of whom autopsies were held. In these 5 there had been made during life 154 analyses without ever detecting the presence of hydrochloric acid; nor had the filtrate from the gastric contents ever digested albumen. Not even on days when large doses of the acid had been given soon after the meal had there been free acid or peptic strength discovered at the examination. In 3 of the other 11 cases there had been at first a weak reaction for hydrochloric acid with a diminution of peptic strength, though even this entirely disappeared later. These cases must be considered instances of commencing carcinoma, since it is, of course, not to be expected that the acid will disappear suddenly. The author, therefore, reiterates his opinion that free hydrochloric acid and peptic strength are usually wanting in carcinoma, and that when constantly present they exclude absolutely the existence of this disease, no matter how suggestive the other symptoms may be. On the other hand, he has never maintained that their absence is proof of the presence of carcinoma, since this absence may occur in other diseases. The statements of Cahn and v. Mering that in carcinoma of the pylorus hydrochloric acid is present in nearly normal quantity, and that the methyl-violet test is valueless, are, he believes, not well founded, for reasons which he explains. As regards instances of other gastric disorders, Riegel observed two cases, diagnosed simple gastrectasis, with constant failure of the free acid and of peptic strength. It is, however, possible that these were in reality of a carcinomatous nature. The chemical examination of two cases of carcinoma of the œsophagus revealed nothing of diagnostic value.

There were 42 cases of gastric ulcer under observation, and 382 analyses were made. In all of them the amount of hydrochloric acid was decidedly increased, and the digestion accelerated. Riegel thinks that the hyperacidity is primary, predisposing; and the ulcer secondary. With Ewald, v. d. Velden,

and others, the author makes a sharp distinction between hypersecretion and hyperacidity. The first indicates a continuous secretion of the gastric juice, independently of the presence of food in the stomach. The second signifies an increase of the production of hydrochloric acid during the act of digestion. The latter not seldom occurs alone; the former is always accompanied by hyperacidity. In recent ulcer of the stomach hyperacidity alone exists, but later hypersecretion may be added to it, and gastrectasia then develop. The list of cases contains 18 instances of chronic hypersecretion and hyperacidity, in which 686 analyses were made. All of these cases exhibited an abundant production of gastric juice even when the stomach was empty—this being, of course, a pathological condition—all suffered from more or less gastrectasia, and in 12 there had been or still existed symptoms of ulcer. Ulcer has no causal relation to dilated stomach; both being results of hypersecretion.

The constant presence of the gastric juice in the stomach, while favoring the rapid digestion of albumen, interferes greatly with the digestion of the amylaceous portion of the diet; hence remnants of food remain so long in that viscus that ectasia is produced. Hyperacidity alone may occasion an ulcer, but cannot occasion gastrectasia, since it causes no retention of the food in the stomach. Stenosis of the pylorus as the result of ulcer, is seldom the cause of dilatation of the stomach. Among the symptoms of hypersecretion are pyrosis, colicky pain, and often increased thirst and appetite. Another group of cases which he reports is formed by nine instances of chronic hyperacidity, there being no evidence of hypersecretion or of ulcer. Still another consists of subacute and chronic dyspepsia. Of this there were twenty-one cases with 105 analyses, in none of which was hydrochloric acid or pepsin permanently diminished to any noteworthy extent—thus confirming the author's former experience. In some of the patients there was an increase of the organic acids, and in a few slight hyperacidity was noted. Of nine cases of nervous dyspepsia in which twenty-eight analyses were made, only one exhibited any change of the gastric secretion; there being but a slight transitory hyperacidity. All of five cases of cholelithiasis were found to present a normal secretion, though twenty-four analyses were made. A very interesting case of severe dyspepsia, caused by the backward flow of bile into the stomach, confirmed the observations of the author made a year ago. The examinations made each day for seventeen days revealed neither free hydrochloric acid nor pepsin; but from the eighteenth day onward bile disappeared from the filtrate, and the gastric secretion returned to its normal character.

In one or two cases of vomiting of pregnancy the author was able to obtain the contents of the stomach at a suitable time after eating, and found the secretion normal or even slightly hyperacid. Fifteen examinations in a case of phthisis with extreme dyspepsia showed always an absence of peptic strength and of free acid. The author believes that amyloid degeneration of the stomach was probably present here. Fifteen analyses in three cases of chlorosis revealed a slight increase of the amount of hydrochloric acid. A case of diabetes underwent four examinations, but without positive results. Two instances of acute febrile processes (erysipelas and typhoid) were each examined once with negative results. The absence of hydrochloric acid and peptic strength is not, therefore, a necessary result of fever.

The author calls attention to the interesting fact that of the total number of cases of diseases of the stomach there were sixty-nine with hypersecretion and hyperacidity, and only nineteen with hydrochloric acid constantly absent. It is, therefore, not good therapy to prescribe hydrochloric acid and pepsin, or a light diet for every case of dyspepsia we meet. The actual condition of the gastric secretion must, first of all, be analytically determined.

The Etiology of Gastric Ulcer.

Impressed by the fact that women employed as cooks so frequently suffer from gastric ulcer, Decker (*Fortschritte der Med.*, B. v. 415) instituted some experiments on the action of hot foods in producing the disease. Two dogs were repeatedly fed through the stomach tube with semi-solid food heated to 120° F. The first received nourishment in this way four times, and the other eight times. At the autopsy of the first dog the mucous membrane of the stomach appeared normal in all parts, except at the lesser curvature, where there was situated a hyperæmic spot, about four-tenths of an inch in diameter, caused by a hemorrhagic extravasation between the mucous and muscular layers.

In the second dog there was found a dark red area on the posterior gastric wall, about the size of a quarter of a dollar. The mucous membrane over it was shrivelled, and resembled felt, and had been somewhat separated from the muscular layer by the occurrence of hemorrhage between them. In the pyloric region were two typical gastric ulcers, extending to the serous layer. The author considers the hemorrhagic infiltration, the shrinking and elevation of the mucous membrane, and its final destruction, to be the three phases in the formation of gastric ulcer.

The Influence of Trauma in the Production of Gastric Ulcer.

In connection with the preceding article the observations of Ritter are of interest (*Zeitsch. f. kl. Med.*, B. xii., H. 5, 6, 592). There are a number of clinical observations which render it almost certain that gastric ulcer can be produced by violence acting through the abdominal walls. Several such cases have been studied in Leube's clinic, and an autopsy of Hofmann's offers additional evidence in the same direction. Ritter made some experiments on dogs to prove that ulcer could actually be brought about in this way. The animals received a rather heavy blow over the region of the stomach, and chloroform narcosis was then continued until death resulted. The autopsies revealed regions of hemorrhage beneath the mucous layer, separating it from the tissues below. There is no doubt that the gastric juice would have soon produced ulcers at these spots, had the animals been allowed to live.

The action of trauma in producing ulcer is probably connected with the quantity and quality of the gastric secretions. Then, too, a more chronically acting trauma, such as disturbance of the circulation, plays, perhaps, a more prominent rôle than has been ordinarily supposed; though it is difficult to understand why chlorosis should lead to circulatory disturbance oftener than do pulmonary or cardiac diseases.

It seems very probable that the use of the corset is also a frequent factor by pressing the stomach against the vertebral column. This, combined with the

pressure of the food toward the pylorus, and the anæmic condition of the mucous membrane in chlorotic women, may be sufficient to deprive the part of blood to such a degree that the gastric juice begins to act upon it.

Pleuritis Pulsans.

Keppler (*Deutsch. Arch. f. kl. Med.*, B. xli., H. 3, S. 220) makes an exhaustive review of the literature of pulsating pleuritic effusion; gives abstracts of the different reported cases, and details another instance of this unusual condition—in all, thirty-eight cases. In remarks on the subject, he says that pulsation can be noticed in various forms of inflammation of the pleura, though it is by far most commonly seen in *empyema necessitatis* of the left side; twenty-three of the thirty-eight cases being of this nature. The list also contains eleven cases of simple left-sided empyema, two of *empyema necessitatis* of the right side; one of left pyo-pneumothorax, and one of right-sided pleurisy with serous effusion (the author's own case).

As regards the influence of age and sex on the production of pulsating pleurisy, as far as the data inform us, it occurs more frequently among men, and between the ages of twenty and thirty years. The author believes that in *pleuritis pulsans* the intercostal muscles must be paralyzed and yielding; the fluid must be under a high degree of pressure, and the cardiac impulse must be sufficiently strong. An exudative pericarditis as described by Traube, or the causes claimed by the writers mentioned, may be additional factors in some instances. Pulsating pleurisy usually, but not always, occurs in chronic cases, and where the fluid is purulent. The pulsation is generally universal; and hence, in *empyema necessitatis*, may be confounded with aneurism. Its seat, however, is different, and no *bruit* is to be heard; while it grows smaller under pressure, and larger after coughing.

Polymyositis Acuta Progressiva.

The paper of Unverricht (*Zeitschrift f. klin. Medizin*, B. xii., H. 5 und 6, S. 533) with the case he reports, is of interest in connection with the article on this subject in the last number of the American Journal. The case was one in which, without known cause, tearing pains developed in the arms, legs, and back, increased by motion, and rendering locomotion difficult. After about three weeks the limbs and face became swollen, though the urine was free from albumen. The swelling and pain increased, profuse perspirations were frequent, and the skin and muscles became very œdematous and tender on pressure, while the joints were neither swollen nor painful. The temperature was about 101° in the evening, but normal in the morning. Within twelve days the limbs were transformed into thick, formless masses, the œdema and tenderness had extended to the throat, and stiffness of the neck with pain on swallowing developed. Two days later the respiration grew rapid and superficial, and finally abdominal; the voice became indistinct, and the effort to swallow food caused choking. On the next day lobular pneumonia was discovered, the patient could not swallow at all, the face was cyanotic, the temperature rose to 104.5°, and the patient died asphyxiated.

This extremely obscure case was clearly one of acute inflammation of the

motor apparatus. It was not neuritis, for there was no anæsthesia or paræsthesia. Trichinosis was repeatedly suspected, but there was no ground to believe it present, and, finally, a piece of the much swollen deltoid was excised, but no trichinæ were found. The autopsy showed the muscles to be extensively diseased. Pale, somewhat translucent gray streaks were mingled in varying proportion with dark red spots of extravasation; the swollen muscles were lustreless and very friable; the extensors and a part of the muscles of the trunk being the ones affected, while the flexors were almost entirely free. The muscles of the eye and the diaphragm were uninvolved. The subcutaneous and intermuscular connective tissue was permeated by fluid. Under the microscope the muscles exhibited grave inflammatory changes, their substance being in all stages of degeneration. The connective tissue was filled with a cellular infiltration.

Unverricht passes in review all the pathological conditions of muscle which have any clinical or anatomical relation to that presented by his case, and points out in what respects they differ from it. He quotes at length two cases reported by Kussmaul and Maier, which resembled trichinosis greatly; and refers to others of Debove and Eisenlohr, but claims that they are not similar to his own. He holds the belief that the disease is of an infectious nature.

Hyperacid Vomiting, and the Condition of the Urine.

Rosenthal (*Berlin. klin. Wochenschrift*, 1887, S. 505) finds hydrochloric acid abundant in the hyperacid vomiting common in overstrained young school-girls, and in hysterical vomiting with cardialgia. In some instances, also, of *crises gastrique* in tabetic patients there was a marked increase of the amount of acid in the vomited matter, which increase was much reduced after the spinal irritation had become less.

He next endeavored to discover the state of the urine in such conditions. For this purpose he estimated the amounts of chlorides and of earthy phosphates present. He thus noticed that in forms of hyperacid vomiting occurring in mental overwork, excitement, or migraine, and often accompanied by cardialgia, there was an evident diminution of the chlorides in the urine. This was especially true in cases of obstinate and long-continued vomiting, where even small quantities of fluid were poorly borne by the stomach. On the other hand, the earthy phosphates were abundant and even increased in the conditions enumerated. Most prominent among the symptoms attending long-continued hyperacidity and vomiting may be noticed the evidences of anæmia and neuræsthenia.

The question arises whether excessive acidity is due to local processes in the stomach, or is but one sign of a general irritation of the nervous system. The author believes that both quantitative and qualitative changes in the gastric juice are under the control of a special centre, connected with a part of the bulbar centre of the vagus. This view is supported by the fact that in the *crises gastrique* of tabes, which are believed to be due to degeneration of the vagus centre, there occurs great hyperacidity of the vomited matter, at a time, too, when the stomach has been long empty of food, and when under physiological conditions no hydrochloric acid should be present. Further,

in hysteria and mental overstrain vomiting of matter, containing an unusually large amount of hydrochloric acid, is often accompanied by retardation of the pulse, dyspnœa, and attacks of coughing, indicating an irritation of the vagus centre in the medulla.

Hypersecretion of acid is to be sharply distinguished from acid dyspepsia; by which latter term the author indicates an abnormal fermentation of the contents of the stomach, and the production of organic acids. For this condition he advises the employment of hydrochloric acid in large doses, because it interferes with the formation of butyric acid. Salicylic acid is also a useful antifermentative. In cases of hypersecretion, on the other hand, alkaline mineral waters are indicated, or bicarbonate of potash with bismuth, and, perhaps, morphia; or large doses of bromide of soda. A systematic water cure may sometimes be beneficial.

Cause of Evolution of Sulphuretted Hydrogen in Urine.

In the October number of the JOURNAL we had occasion to notice the investigations of Rosenheim in this somewhat obscure subject. F. MÜLLER (*Berliner klin. Wochenschrift*, Nos. 23 and 24, 1887) has made an experimental inquiry in the matter, which goes to show that the commonly accepted view that there is a tendency toward a diffusion of H_2S into the urine, when it has been generated in the body or introduced from without, is erroneous; for only after the introduction of relatively enormous quantities of the gas (in the shape of sodium hyposulphite) could its presence be demonstrated in the urine of the dog experimented upon.

Clinically he observed that all urines containing H_2S were, at the same time, decomposed — though not every decomposing urine contained H_2S. Small quantities of urine in which the gas had already been generated were capable of initiating its evolution in fresh specimens of urine when added to them. This (in accord with Rosenheim's investigations) pointed to the presence of an organized ferment as the cause of the change, and he was able to isolate at least two forms of bacteria, having the power of producing this particular decomposition. One was a large round coccus; the other an oval one having also the property of causing ammoniacal decomposition. The source of the H_2S he finds neither in the albumin nor the sulphates of the urine, but in some as yet unknown body—"neutral sulphur."

According to him, the best test for H_2S in urine is to blow a stream of air through the specimen for ten minutes against a piece of paper moistened with a solution of acetate of lead.

Parenchymatous Injection of Ergotin in Malarial Enlargement of the Spleen.

PINNA reports a case in the *Centralblatt für die medicinischen Wissenschaften*, No. 42, 1887, in which a large splenic tumor, of malarial origin, disappeared after three injections of three-quarters of a grain each, of ergotin, repeated at intervals of several days. Very little reaction occurred. The red blood-corpuscles were increased from 3,420,000 to 4,250,000, and the hæmaglobin from 48.6 to 50 per cent.

SURGERY.

UNDER THE CHARGE OF

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Sublimate Paper as a Dressing for Wounds.

Gedeke (*Centralblatt für Chirurgie*, No. 41) has used with advantage as an antiseptic dressing filtering paper soaked in a two per cent. solution of sublimate with five per cent. of glycerine, and then dried. He has used it after extirpation of the cervical glands, amputation of fingers, and in one case after amputation of the thigh, when it was left in for ten days. He formulates the following conclusions: 1. Filtering paper soaked in a two per cent. solution of sublimate is a valuable dressing. 2. It should be used in from two to eight layers, according to the size of the wound. 3. It is especially indicated in recent wounds. 4. In complicated wounds of the fingers it has the advantage of immobilizing the parts. 5. It should usually be left on not longer than two to three days. 6. In the absence of other antiseptic materials, it will often suffice in a short time to render suppurating wounds aseptic.

The Treatment of Wounds by Iodoform Tampons.

Dr. F. Bramann reports (*Archiv für klinische Chirurgie*, Berlin, 1887) the results of treatment of wounds in Von Bergmann's clinic for some years past. The gauze employed is sterilized by means of steam at 212°, and after drying may be impregnated with an antiseptic solution. The sterilized gauze is used in cases of trifling operations in small wounds. In larger wounds with more profuse secretion, it was thought best to obtain whatever advantage could be derived from the impregnation with corrosive sublimate, especially as the patients and operators are in the immediate vicinity of an audience coming direct from the anatomical rooms. The cotton employed is of late years merely sterilized. The towels, gum cloths, sponges, etc., are treated in a like manner. The silk used in sutures is wound on glass or metal spools, sterilized by steam, and inclosed in metal caskets. The catgut used for deep stitches (stitches of relaxation), and for ligatures, is kept ten to fourteen days in a solution of 4 parts bichloride, 800 of alcohol, 200 distilled water. This is frequently renewed. The catgut is then changed to an alcoholic sublimate solution of 1 to 800 alcohol and 200 parts of water, and is taken direct from this. The preparation of the patient consists in giving full baths, washing the region of operation with soap and water, shaving the part, rubbing the skin with ether, and disinfecting it with from 1 : 1000 to 1 : 200 solution of sublimate. The instruments are kept in a three per cent. solution of carbolic acid. During the operation the wound is often irrigated with 1 : 2000 bichloride solution. In operations in the abdomen, the pleural cavity, the mouth, rectum, and bladder, salicylic acid 1 : 1000, or boric acid 1 : 200 is employed,

and at the end of the operation a solution of iodoform in ether is generally used.

Next to strict antisepsis, the complete stoppage of bleeding is regarded as the chief agent in procuring union by first intention.

When the wound is dry, and the smallest bleeding vessels have been tied, the suture is applied with or without drainage, but only in those wounds which are considered absolutely antiseptic, and have not been infected through previous suppuration or contact with unclean materials. Among the cases treated in this manner are included all extirpations of tumors, removals of breasts, amputations, osteotomies, etc.

In wounds where the bleeding cannot be entirely stopped the formation of a large clot is objectionable, not only on account of the pressure which it may make, as in fractures of the skull, but because of the risk of decomposition and blood poisoning. Although such clots may, through absorption and organization into connective tissue, aid in the process of repair, they sometimes remain fluid for long periods, and during that time are a source of danger. Therefore, when it is impossible to dry the wound absolutely, or where there is the least suspicion that it is not entirely aseptic, after thorough disinfection with 1 : 1000 bichloride solution and with an ethereal solution of iodoform applied to the wound by means of a syringe, it is loosely packed with strips of iodoform gauze of several feet in length, and three to four inches broad. They are applied so that the larger part of each strip lies in the wound, and the ends come out at the angles. The sutures were formerly put in at this time, but this has been abandoned on account of the difficulty in keeping them disentangled, and of their adhesion to the iodoform gauze. The patient is now anæsthetized a second time for the application of the sutures. The tamponed wound is covered with sublimate gauze and cotton and an antiseptic bandage. If the secretions make their way through the dressings, the superficial layers are renewed, but the iodoform gauze is allowed to remain undisturbed for two days. If it is then removed by gentle traction on the ends hanging out of the wound, the latter is found clean, unirritated, not reddened, absolutely dry, and it is only very exceptionally that a ligature is required. Careful suturing with or without drainage has resulted invariably in union by first intention, even in those cases in which, for any reason, as great weakness, or for the stoppage of bleeding from large vessels, the tampon has been left in from four to six days. His report of his results is extremely interesting, includes a large number of important cases, and appears to confirm his estimate of the value of this method.

Subcutaneous Injection of Blood and of Saline Solutions.

Von Ziemssen (*Klinische Vorträge*, 1887, No. 3; *Centralblatt für Chirurgie*, No. 41) regards the customary operation of transfusion as attended by so many alarming symptoms, such as fever, rigors, albuminuria, hæmoglobinuria, etc., that it is not only without curative effect, but is even in itself dangerous to life. These dangers do not attach merely to the injection of defibrinated human blood, but also to the direct injection into the vessels of blood containing the unavoidable mixture of fibrinous flocculi and air-bubbles. All the

dangers of these methods are avoided if the blood is injected into the subcutaneous cellular tissue. Von Ziemssen describes his method as follows:

Well-defibrinated blood, treated with the greatest aseptic precautions, and kept at a temperature of from 98.6° to 104° F., is injected deeply into the subcutaneous connective tissue with a small syringe holding between six and seven drachms. The upper part of the thigh is usually selected. The seat of injection is at once vigorously rubbed by an assistant, and this massage is a very important part of the operation. If large quantities are injected, the rubbing is very painful and necessitates the use of an anæsthetic. For each new syringeful, a new puncture is made. The injections are continued as long as the blood-supply lasts. Von Ziemssen has thrown in as much as ten or eleven ounces in fourteen injections. After the operation an ice-bladder is laid over the part and the patient allowed to rest.

The procedure is practically without danger. No bad effects have been seen to follow it. A very slight suppuration occurred in two cases as a consequence of trifling but easily avoided errors of technique.

The subcutaneous connective tissue acts as a filter, which arrests coagula, air-bubbles, and ferments, while the red blood-corpuscles pass easily and quickly through it. After a few days no traces of free blood are found at the site of injection, while in the circulating blood there is a demonstrable increase of the hæmoglobin, which is sometimes even doubled in quantity. A slow decrease follows for several days, but this constituent of the blood is always in larger proportion than it was before the operation. After repeated operations it may reach the normal standard. A coincident increase of the red blood-corpuscles also occurs.

Severe cases of chronic anæmia have by this method been cured in a month. It has not been tried in acute anæmia after severe hemorrhage, but seems to be indicated. When danger of death is imminent, salt-water previously well boiled may be injected to prevent the "emptying of the heart-pump," but should always be followed by the injection of blood.

Death during Ether Inhalation.

Dr. D. Hayes Agnew reports (*The Medical News*, Nov. 19, 1887) two cases of sudden death related to etherization, one occurring during anæsthesia for ligation of hemorrhoids, in which he was assisted by Dr. White; the other just before the etherization was begun in a case of herniotomy. In the former death resulted from an apoplexy into the fourth ventricle, the clot resting upon the respiratory centre; in the latter it was synchronous with an attack of vomiting, nothing having been done further than to put the patient in position. Dr. Agnew states his belief in the safety of ether, and that in reported cases of deaths occurring with careful operators, there has been an undetected element more potent than the ether, as in the first of his cases.

The feeling which he expresses as to the safety of ether as an anæsthetic, is the one generally held by practical surgeons. In 1861, a committee of the Boston Society for Medical Improvement reported that after elaborate research they had learned of no case which was unquestionably and unavoidably fatal from the breathing of pure sulphuric ether. They considered two conditions essential to placing the responsibility of any case of death upon the anæsthetic: 1. That the event should occur while the patient is actually

anæsthetized. 2. That the circumstances of its occurrence should be inexplicable by any phenomena of disease or operation. The only one of the forty-one alleged cases collected by them even remotely parallel with that of Dr. Agnew and Dr. White, is that reported by Dr. Alonzo Clark, in which the autopsy disclosed a tumor in the right lobe of the cerebellum, pressing upon the medulla oblongata. The deaths recorded later by Turnbull and Lyman in their treatises, and for a series of years by Jacob (*Brit. Med. Journ.*), are either uncertain in their relation to etherization, or were caused by asphyxia, or more rarely by syncope.

Druet (*Des Contraindications de l'Anæsthesie*, 1880) and Kappeller (*Deutsche Chirurgie*, 1881) give no new light on sudden deaths occurring *during* anæsthesia, and accompanied by cessation of respiration. The cases of Hunt, Morton, Levis, Hutchinson, Norris, Sims, Emmet, and others, are all instances of death *after* anæsthesia, at periods ranging from two hours to eighteen days, and possibly associated with nephritis.

In connection with the cases reported by Allin and by Post occurring during operations for tumors of the neck, the observation of Schiff should be remembered, that when animals are anæsthetized, pinching the skin of the neck will at once arrest both respiration and the action of the heart.

In several recorded cases, while herniotomy was being performed, the patient vomited and died. Mr. Marcus Gunn has suggested that as the vomiting of acute intestinal obstruction results from a powerful descending impulse of the vagus and as sudden arrest of the heart's action in diastole is also known to be produced by such an impulse, we may expect to meet with this association of vomiting and sudden heart failure during as well as before and after anæsthesia. Dr. Agnew's second case was possibly of this nature. The same result has occurred even more frequently under other anæsthetics.

Warrington Hayward records a death during etherization from the sudden failure of respiration owing to the occurrence of an epileptiform spasm of the respiratory muscles, whereby the chest was fixed in the position of expiration. Nothing was discovered either at the time, or at the autopsy, which gave any clew as to how the fatality could be avoided.

The doctrine of cerebral inhibition advanced by Brown-Séquard should not be overlooked in its application to the few cases of sudden death *during* etherization in which the autopsies failed to explain the accident. He has shown that there is an arrest or suspension of function in nerve centres, muscles, and nerves, taking place without demonstrable organic change, and following immediately upon irritation of the nervous system at some point more or less distant from the part in which the effect is observed. He attributes to this cerebral inhibition the cases of sudden death ("death without agony") which are analogous to the loss of intellectual activity that occurs in epilepsy. Such death may be produced in animals by a prick of the ventricle of Arantius in the floor of the fourth ventricle.

The possibility of this form of inhibition having occurred in their case was discussed by Drs. Agnew and White, immediately after the fatal termination, as was also the theory of cerebral embolism, both being suggested by the instantaneous character of the death, which was so evidently of central origin. The autopsy fortunately removed the case from the region of conjecture, and

supplied an easily understood explanation of the occurrence, which although probably unique in its relation to etherization, is not otherwise extraordinary, sudden deaths from apoplexies or embolisms in that locality being not infrequent. It is probable that this patient was in imminent danger, from increased vascular tension, at the time of previous etherization, and that the progressive increase in the brittleness of the arteries during the succeeding twelve months made the difference between the results, as a smaller quantity of ether was used on the second occasion. It would seem that, even in the light of this experience, the risk of such an accident is one against which no caution can prevail, but which must be accepted alike by patient and operator.

Removal of an Intracranial Tumor; Recovery.

Professor F. Durante reports (*The Lancet*, Oct. 1, 1887) the case of a woman, æt. thirty-five, who had successively developed loss of smell, impairment of memory, uncertainty of movement, change of disposition, etc., which led him to diagnosticate a tumor within the cranium, the pressure of which affected the anterior lobe of the brain, and paralyzed or destroyed the olfactory nerve. Moreover, the displacement of the globe of the eye indicated that the tumor had penetrated the superior arch of the orbital cavity.

He removed a large portion of the left frontal bone, commencing at the superior orbital margin inferiorly, and found that the internal parietes of the frontal sinus had been forced outwardly. The dura mater being now exposed, was found to be perforated by the tumor just opposite the frontal eminence. The tumor did not adhere beyond the internal surface of the dura mater, and its enucleation was comparatively easy, with the adherent portions of the dura mater. The hemorrhage was slight, and easily controlled by a sublimated tampon. The tumor was lobular, of the size of an apple, and weighed about two ounces. It occupied the anterior fossa, at the base of the left cranium. extending to the right and upon the cribriform lamina, which it destroyed, Posteriorly it extended to the glenoid tubercles before the sella-turcica. The left anterior cerebral lobe was greatly atrophied; the orbital arch was much depressed, but not perforated by the tumor. The bleeding was stopped, and the wound united, a drainage tube being left in the cavity, and descending to the left nasal fossa through the opening made in the ethmoid by a prolongation of the neoplasm. The nasal cavity was closed with an iodoform tampon. The operation lasted about an hour.

With the exception of some pressure symptoms produced by interference with drainage, she did very well, and returned to her home in fifteen days, improved as to movement, but not as to memory or sense of smell. Three months later the eye had regained its normal position; smell had returned; intellectual and moral faculties were normal. Three years afterward (the date of report) the patient was in perfect health.

Gastrotomy for the Removal of Foreign Bodies from the Œsophagus.

In a certain proportion of cases foreign bodies, which have been swallowed accidentally, pass the region of the bronchus and become lodged in the gullet

just above its diaphragmatic constriction. At any point below the cricoid it becomes dangerous, on account of the anatomical relations of the œsophagus, either to use extreme force in their withdrawal, or, still more so, if they are of indigestible material and irregular in shape, to push them onward into the stomach. Instances of death from perforation of the trachea, the pleura, and the aorta during such violent efforts have been recorded. Until recently, however, it has been thought justifiable to use these methods in certain cases.

Dr. Maurice H. Richardson (*The Lancet*, October 8, 1887) was led by a case of impaction of a denture of four teeth at the cardiac end of the œsophagus, to perform gastrotomy for its removal, which required the introduction of the hand into the stomach and of the fingers into the œsophagus. The plate was found about two inches above the diaphragm, and, after considerable careful manipulation, was dislodged and removed. Dr. Richardson has since then made a series of sixty observations upon the cadaver, to determine the exact location of the foreign body with reference to the cardiac end of the œsophagus and also to the cricoid cartilage, in order that an intelligent choice might be made between gastrotomy and œsophagotomy, it being taken for granted that that operation is better in which the fingers can be used when instruments fail. The general conclusion is, that by means of gastrotomy the obstruction can be reached by the finger in all, or nearly all, cases when it is situated more than six inches below the cricoid cartilage. If less than six inches from the cricoid cartilage it can be reached best from above, though in some few cases it may be just beyond the reach of the finger; but in these cases instruments can be easily applied. The measurements of the point of impaction or obstruction having been carefully made, and it having been demonstrated that the point in the œsophagus to be reached, if necessary, by the finger is not less than thirteen inches from the upper incisors, or six from the cricoid, he would perform the operation of gastrotomy. He prefers an oblique incision six inches in length and parallel to the edge of the ribs on the left side. The stomach should be drawn out of the wound and held by an assistant in both hands, so that it is flattened out. The cut through the stomach wall must be far enough to the right to allow the passage of the instrument along the sulcus between the anterior and posterior walls. If it is brought obliquely to this groove and passed upward, all the time being pressed gently against the straightened lesser curvature, it will glide into the œsophagus easily.

Gastrotomy also has to recommend it the decreased danger in making traction *downward* in such cases. The distance is shorter and the foreign body is already below the points at which the œsophagus is in direct relation with either heart, aorta, pleura, or bronchus.

Dr. William T. Bull (*The Medical News*, October 22, 1887) reports a case in which a peach-stone became impacted in the œsophagus thirteen inches from the incisors. After unsuccessful attempts to dislodge it had been made, gastrotomy was performed through an incision three inches in length, extending from the level of the ninth costal cartilage to two inches above the umbilicus. A portion of the anterior wall of the stomach was selected, about three inches from the pylorus and midway between the greater and lesser curvatures. This was drawn out of the abdominal wound. Two loops of

silk were put through it, two inches apart, in a vertical line, and an incision one and a quarter inches long made between them. Two more loops of silk were fixed in the edges of the wound. The index-finger was then introduced, filling the wound completely, and passed directly backward to the vertebral column, and then guided by that structure was passed into the œsophagus. In doing this the anterior wall of the stomach was carried inward with the finger, like the invaginated scrotum in examination of the inguinal canal. The small size of the wound prevented the escape of any possible contents of the stomach. Œsophageal forceps were passed along the finger, but failed to dislodge the foreign body. A slender bougie was then passed along the finger and projected from the mouth. A sponge, half an inch in diameter and one inch and a half long, was tied to the lower extremity with strong silk, one end of which was left long. The sponge was pulled through without bringing the foreign body. A larger sponge was then tied to the end of the silk and drawn through, bringing the peach-stone into the mouth.

The noticeable points in Dr. Bull's case are the smallness of the wound in the stomach; the invagination of the anterior wall; the use of the loops of thread, keeping the edges of the wound close to the finger, which thus acted as a plug; the very moderate manipulation of the stomach itself.

The statistics of gastrotomy for the removal of foreign bodies show 14 cases with but 2 deaths. In 12 the bodies were in the stomach, in 2 in the œsophagus. Of 82 cases of œsophagotomy, 63 recovered and 19 died.

The Diagnosis of Chronic Mammary Abscess or Phlegmon from Carcinoma.

M. Paul Reclus reports (*Gazette Hebdomadaire de Médecine et de Chirurgie*, No. 12, 1887) a series of cases showing the difficulty which frequently surrounds the diagnosis of mammary tumors and which, he thinks, has often resulted in the removal of a breast which a simple incision would have sufficed to cure.

M. Reclus concludes that, as in both cases we may have marked induration, absence of fluctuation, adhesion of the skin, which may be changed in character, retraction of the nipple, glandular involvement, etc., the only absolutely certain method of diagnosis is the use of the exploring needle. It is evident, of course, though this point is not dwelt upon as it might be, that the presence or history of lactation would give rise to suspicion as to the character of the tumor. Indeed, that circumstance should be almost a sufficient guide to enable the surgeon to avoid the mistakes the writer records. In another series of cases in which the greater volume of the growth, its softness, the condition of the skin, etc., led to the diagnosis of encephaloid, subacute phlegmon or abscess was found, depending in each instance on lactation, and usually following weaning.

Laparotomy in Suppurative and Tubercular Peritonitis.

At a recent meeting of the Clinical Society of London (*The British Medical Journal*, Nov. 5, 1887), Mr. Barwell reported a case in which during an acute peritonitis following a blow upon the abdomen, he had opened the peritoneal cavity, sponged its lower portion and washed it out with distilled water,

bringing away quantities of flocculent pus. The wound was sewn close without drainage. There was rapid convalescence.

MR. KNAPP reported a case in which the abdomen was opened for a supposed ovarian cyst, and the peritoneum, mesentery, and intestines were found covered with tubercles. The cavity was washed out with warm water. The patient recovered, but had evidence of pulmonary tubercle. He alluded to the remarkable experience of Tait, who claimed uniform success so far as the operation was concerned, with complete cure in 80 per cent. of all cases of tubercular peritonitis.

DR. CLARKE reported a case of ascites with dulness over the left lung, temp. 100.2° F., pulse 120. On opening the abdomen the intestines and peritoneum were found studded with little bodies like boiled tapioca grains. The cavity was well disinfected with a one per cent. carbolic solution. Convalescence was uninterrupted, and in six weeks the patient seemed perfectly well.

MR. TREVES thought most surgeons would prefer to use a drainage tube after these operations. He referred to a record recently published in Germany of 97 cases of draining the abdomen for peritonitis, and to Kussmaul's paper comprising 30 cases, with 6 others subsequently added, making 36 cases with 6 deaths, 2 from the operation, and 4 from general tuberculosis. A discussion as to methods and indications for the operation followed.

PROF. BREISKY reports (*Centralblatt für gesammte Therapie*, June, 1887) a case of operation for supposed ovarian tumor in which wide-spread intestinal tuberculosis was found, as was demonstrated by examination of a small section of the peritoneum. The wound healed by first intention, and the patient improved in general health, although a pulmonary tuberculosis, which had existed prior to the operation, was unaffected by it.

DR. E. CEPPI reported (*Rev. méd. de la Suisse Romande*, May 16, 1887) a case of chronic purulent peritonitis cured by abdominal incision with drainage. The so-called Neisser's gonococci were found in the peritoneal exudation.

BESNIER reported, at a recent meeting of the Paris Society of Medicine, a case of suppurative puerperal peritonitis in which the abscess was encysted. Aspiration, the evacuation of five and a half quarts of pus, iodine and collodion externally, and the free use of tonics, resulted in a cure.

INGUINAL COLOTOMY.

MR. H. W. ALLINGHAM, JR., (*The British Medical Journal*, Oct. 22, 1887) prefers inguinal to lumbar colotomy, for the reasons that the position of the patient is better for the operator, who can find the sigmoid flexure more easily than the colon can be found through the lumbar incision, and for the patient where respiration, especially when the abdomen is distended, is liable to be interfered with by the side position. There is less constitutional disturbance, and less suppuration, which is not infrequent about the muscles and cellular tissue of the back after the lumbar operation. He believes the disturbance of the peritoneum in the former case is no more dangerous than the disturbance of the connective tissue and surrounding parts in the latter. He describes his operative method in detail, laying stress upon the importance of bringing the bowel well out of the wound before stitching it to the walls of the latter by sutures, including only the serous and muscular coats.

A Case of Anæsthesia of the Urinary Tract.

Dr. Friedrich Schæfer reports (*Deutsche med. Wochenschrift*, Oct. 6, 1887, No. 40) the case of a man, aged fifty-four, who, with the exception of a very trifling burning during urination, had none of the so-called diagnostic symptoms of stone. A vesical examination made on account of occasional very slight ardor urinæ revealed the presence of a stone the size of a cherry, situated in the fundus of the bladder. Dr. Schæfer proceeded at once, without the use of any anæsthetic or narcotic, to crush and evacuate the stone, the fragments weighing 45 grains, and consisting of uric acid. The patient during the operation laughed and smoked cigarettes. He went home the following day apparently well. Dr. Schæfer believes that, although the individual variations in the sensibility of the urethral and vesical mucous membranes are very great, such absolute insensitiveness during a usually painful operation has not yet been recorded.

Fracture and Dislocation of the Astragalus.

Dr. L. A. Stimson reports (*Annals of Surgery*, November, 1887) a case of injury to the foot resulting from a fall from a third-story window, with the following symptoms:

The left foot and the lower half of the leg were swollen and discolored; the foot was at right angles to the leg, and was capable of some flexion and extension without deviation. A marked prominence was present at the inner side of the ankle, over which the skin was tightly drawn and was livid; it was at first supposed to be the internal malleolus, and the foot seemed to be carried bodily to the outer side; but on palpation the prominence was found to be behind and a little below the malleolus, and to have a curved border running backward and outward. Below this border could be felt a broad surface that was curved backward and inward; in front there was an abrupt depression. The scaphoid was in its normal location with regard to the malleolus, and no depression could be felt behind it in the situation of the head of the astragalus, although the swelling was such that the examination was not deemed very trustworthy. The peroneal tendons were displaced forward, so as to lie upon the outer surface of the external malleolus. The relations of the fifth metatarsal, cuboid, and calcaneum appeared to be normal. The dorsalis pedis artery was beating, but the posterior tibial could not be felt. Reduction of the deformity could not be effected, and an incision was made backward and downward from a point in front of the malleolus. A transverse fracture was found at the junction of the body and neck of the astragalus, the former having been completely dislocated backward and inward. The head of the astragalus was in place. The tendons of the tibialis posticus and the flexor longus digitorum were torn from their sheaths. The posterior tibial artery was pressed backward. The body was removed. The patient died of pneumonia on the ninth day.

In a case of MacCormac's (*Trans. Path. Soc.*, London, 1875), the injury was complicated with fracture of the internal malleolus, which was found afterward to have become coössified with the astragalus. There was the same displacement of the tendons of the posterior tibial and long flexor muscles.

In a case reported by Cheever (*Boston Med. and Surg. Journ.*, 1875, p. 237),

a marked symptom, and one which would be expected to follow the dislocation of the tendon, was the rigid and immovable flexion of the last phalanx of the great toe. In this case tenotomy of the tendo Achillis and of the tendons of the anterior and posterior tibials, the common flexor and the long flexor of the toe, was performed, but reduction was not effected. The patient recovered with a useful foot.

Dr. Stimson thinks that the fracture and dislocation probably occur as a result of external violence acting in the direction of the long axis of the leg along the sloping articular surface of the calcaneum, forcing that bone and the tibia closer together, so that the posterior part of the astragalus is squeezed out from between them.

In a case of this dislocation recorded by Mr. Benjamin Phillips (quoted by Pick) a gentleman, in running, placed his foot in a gutter, so that the toes rested on the further edge and the heel was jammed violently down to the bottom of the gutter, the patient at the same time falling forward.

OTOLOGY.

UNDER THE CHARGE OF

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Contused Wound of Auricle.

A girl, thirteen years old, was struck with a piece of rope over her auricle, by a teacher. Intense swelling set in about the wound, which was near the junction of the concha with the posterior wall of the auditory canal. The next day the entrance to the external meatus was almost entirely closed. The treatment consisted in hydropathic dressings, under which the swelling rapidly went down, and the abscess which had been feared, was prevented. (*Universitäts-poliklinik für Ohrenkranke zu Bonn: Archiv für Ohrenheilkunde*, Bd. 25, pp. 76–77, 1887.)

From the same source comes the account of an othæmatoma which had been improperly treated by incisions a year before the clinic had charge of the case. The tumor gradually grew until it took in all the upper concave part of the auricle. Its radical removal was accomplished by first making an incision three centimetres long in the direction of the anthelix, running through a fistula which was found in the tumor. A mass of spongy granulations was removed by means of the sharp spoon. After this two crescentic cuts running from the first incision were made, and a piece of the hypertrophied cartilage was removed, and the edges of the wound joined by means of six sutures, a small opening being left at the lower angle of the wound. Healing followed by first intention, though the edges of the wound were approximated with considerable tension of the sutures. In fourteen days the place formerly occupied by the tumor was marked only by a narrow, smooth cicatrix, and a slight deformity of the cartilage.

Acute Suppuration of the Tympanum in Chronic Bright's Disease.

Dr. Roosa, of New York, gives an account of a case with the above title (American Otolog. Society, July 19, 1887). A woman, forty-two years old, complained of intense pain in the left ear. She was seen the next day by Dr. Roosa, who found that the patient had been previously affected with a profound non-suppurative catarrh of both ears, with deafness. In two days there was noted a tenderness over the mastoid. Leeches, poulticing, and hot douches, relieved the pain, with varying success until fourteen days elapsed, when all the symptoms about the ear increased in intensity. The temperature, which had been increased, became low. Paracentesis of the membrana tympani was performed by Dr. Emerson, and gave some relief. The symptoms in thirty-six hours grew worse, and the temperature rose to 103.5°. Paracentesis was again performed, without much relief, and finally œdema of the lung set in. (Patient far advanced in chronic Bright's disease.) She died thirty-four days after the first ear symptoms.

The post-mortem examination revealed the fact that the disease was tympanic and not mastoid, verifying the diagnosis previously made by Drs. Roosa and Emerson.

Rapid Loss of Hearing in a Child Seven Years Old.

Dr. A. H. Buck, of New York, reports a case of the above-named form, in which inherited syphilis was the apparent cause of the disease, and in which the hearing improved markedly after the use of iodide of potassium (American Otological Society, July 19, 1887). Although the nares and nasopharynx were markedly catarrhal, this was not sufficient in the author's opinion to account for the profound and sudden loss of hearing, which lasted for some months, and improved only after large and continued doses of the drug just named. This was given at first in five grain doses, three times daily, until it reached seventeen grains three times a day. One of the chief instructive features of interest in this case was a circumscribed periostitis, which was demonstrable for a comparatively long period, symmetrically situated in both external auditory canals, at a point corresponding to the osseous floor of the mastoid antra. As late as September 17, 1887, the child's physician reported that the boy could hear nearly as well as ever.

Syphilitic Disease of the Labyrinth, exhibiting Remarkable Variations in the Degree of Deafness.

In a man, thirty years old, affected with inherited syphilis, the hearing in the left ear was greatly reduced, being 0 for the watch, and 2′ for loud words. In the right ear, he could hear loud words at 20′, and the watch on light contact (Dr. S. Theobald, Amer. Otol. Soc., July 19, 1887). The treatment consisted of biniodide of mercury $\frac{1}{12}$ gr., with iod. potass. gr. ij, thrice daily, and the use of a gargle containing tincture of iodine and iodide of potassium. No great improvement in hearing for words. The mercurial was now increased to $\frac{1}{24}$ gr. The hearing not seeming so well, the biniodide was stopped, and hydrarg. bichlor. gr. $\frac{1}{24}$, with ammoniæ muriatis gr. x, given three times daily. The hearing improved greatly under this in three weeks, and

the watch was heard in the right ear at 2″, and whispered words at 20′. The left ear was not materially improved. In the course of two months, the treatment being kept up, he suddenly became very deaf—as much so as when first seen. In addition to the ammonia and mercury, he was ordered to apply behind and around the ears a twenty per cent. solution of the oleate of mercury. In two months he reported that the treatment had been discontinued, and that his hearing was normal on the right side for words, and for a loud voice 20′ in the left ear. There were two more relapses between March and June of this year. The mercurial treatment was carried out, without much apparent effect upon the hearing. This case seems like one of disease of the middle ear, and to demand, therefore, more direct treatment of the nasopharynx and Eustachian tube.

Aural Vertigo.

Dr. Gellé, of Paris, has recently written an elaborate and highly valuable article on this subject, based on the observation of three cases, and their autopsies (*Annales des Maladies de l'Oreille, etc.*, Sept. 1887). While admitting a neuropathic element in these, as in all cases of Ménière's disease, this writer believes largely in the mechanical element in aural vertigo. This view is substantiated by the fact that in all of these cases one of the fenestræ of the two with which the labyrinth is supplied was rendered immovable, either by a fixation of the foot plate of the stirrup in the oval window, or by the stopping up of the round window. As these fenestræ act the part of safety-valves, equalizing the pressure made upon the labyrinth fluid by sound waves and other impulses upon their surfaces, if one is stopped up or ankylosed, pressure through the other makes an undue impression on the terminal filaments of the auditory nerve, and excites vertigo.

Another very important element in the genesis of aural vertigo in its different forms, is the condition of reflex hyperæsthesia and hyperexcitability in which the acoustic nerve is brought and maintained, in consequence of the repetition of irritation and functional excitations, like deglutition, etc.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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New Literature.

In October was issued from Paris the first number of *Archives de Laryngologie, de Rhinologie et des maladies des premières voies respiratoires et digestives*, edited by Dr. Albert Ruault, in charge of the laryngologic clinic of the Institution nationale des Sourds-Muets of Paris, with the scientific concourse of Professors Bouchard, Cornil, Verneuil, Trelat, and thirty-one other

physicians and surgeons of hospitals and members of the teaching faculties of Paris. It differs from the two older laryngological journals of France in excluding otology. Its scope comprises diseases of the nose, nasal cavities, frontal sinus, nasopharyngeal cavity, pharynx, soft palate, tonsils, mouth, and appendages, larynx, œsophagus, trachea, and neck, which it proposes to discuss, not only in their special relations, but also in their relations to general medicine and surgery. No intimation is given as to the frequency of publication. The initial number contains an original article by Dr. F. Verechère, on the operative indications in certain recurrent tumors of the nasal and post-nasal cavities; a critical review by Dr. P. Le Gendre, on antiseptic treatments for diphtheria; a partial report of the Laryngological Section of the recent session at Washington of the International Medical Congress; and an analysis of some recent French and other publications on the subjects to which it is devoted. We greet the *Archives* with cordial welcome.

Leucoplakia Buccalis.

Dr. W. C. Glasgow, of St. Louis, has reported (*New York Med. Journ.*, Oct. 22, 1887, p. 461) an instance of recovery in a male aged forty-eight years, under local applications of iodine and tonics internally. The origin of the disease was attributed to excessive tobacco-smoking, and not to syphilis, to which, on insufficient grounds, it had been ascribed by other practitioners.

Stricture of the Œsophagus from Simple Ulcer.

M. Debove has been able, by an autopsy, to confirm his view that stricture may be due to cicatrization of simple ulcer (*Concours Méd.*, August 20, 1887).

Gastrotomy in Removal of Foreign Body from the Œsophagus.

Dr. Wm. T. Bull, of New York, reports (*The Medical News*, Oct. 21, 1887, p. 484) the successful performance of gastrotomy for the removal of a peach-stone impacted in the œsophagus, thirteen inches from the teeth. A median incision, three inches in length, extending from the level of the ninth costal cartilage to a point two inches above the umbilicus; an incision one inch and a quarter into the stomach; the insertion of the index finger into the œsophagus until it reached the foreign body passed down from above by a bougie; the passage of a slender bougie through the stomach and out through the mouth; the attachment of a piece of sponge to the lower extremity of this bougie, and the withdrawal of the bougie by the mouth bringing up the foreign body, comprised the steps of this interesting and unique procedure. Invagination of the abdominal walls and of the stomach by pressure with the fist permitted access of the extended forefinger into the œsophagus, without introduction of the hand into the cavity of the abdomen. For instructive, important technical details, the original must be consulted.

Detachment of Post-nasal Polypi.

Victor Lange, of Copenhagen (*Deutsch. med. Woch.*, 1887), reports several cases in which the pedicle was severed by a tug with a blunt hook passed through the nose; the tumor being fixed by the forefinger passed into the pharynx.

Cure of Recurrent Nasopharyngeal Tumor by Electrolysis.

Dr. R. F. Lincoln, of New York, has reported (*New York Med. Journ.* Oct. 22, 1887) an additional success in this line of treatment; the case being one of repeated recurrence after several surgical operations through the mouth and through the cheek.

Occlusion of the Posterior Nares.

Dr. A. W. Mac Coy, in a comparative study of some of the methods best adapted to the relief of occlusion of the posterior nares (*New York Med. Journ.*, Oct. 22, 1887, p. 457), extols a flexible sheathed applicator, devised by him to facilitate the use of caustics. It resembles a class of instruments used by Elsberg and others, some twenty-five years ago, but long since discarded. There is some improved mechanism in Mac Coy's tube which will commend itself to those who require such covers to their caustic points.

On the Treatment of Atrophic Rhinitis by Applications of the Galvanic Current.

Dr. D. Bryson Delavan speaks (*New York Med. Journ.*, Oct. 22, 1887) quite favorably of electricity as a therapeutic agent, the results of which he has not seen equalled by any other method. As intranasal electrode he uses a copper wire protected by a pledget of absorbent cotton saturated with lukewarm water, as external electrode a flat sponge at the nape of the neck; the intranasal one being connected with the negative pole of the continuous battery current, the strength of which varies from four to seven milliampères during a setting of from five to twelve minutes, or until a serous discharge occurs.

Recurrent Hemorrhage of the Vocal Band.

Dr. C. E. Bean, of St. Paul, reports (*New York Med. Journ.*, Sept. 24, 1887, p. 351) a case under his care for several years recurring suddenly after violent cough excited by inspiration of irritant substances, apparently overcome finally under the administration of extract of ergot, half a grain three times a day.

Leprosy of the Larynx.

Sir Morell Mackenzie has commenced (*Journal of Laryngoloy and Rhinology*, Oct. 1887) an entertaining and instructive "Report upon Leprosy in Europe, particularly as it affects the Air-passages, the results of some studies made in Spain, in Madeira, and in Norway during the past few years." At his visit to the Hospital de San Lazaro, in Seville, in 1880, there were 29 male patients, 9 of whom had well-marked throat affections, as had 2 out of 10 females, the peculiar features of which are tabulated, In one instance the throat was affected from the beginning of the disease, in the others at periods varying from two to eleven years. One constant feature was enlargement of the epiglottis. In one case of ten years' standing the epiglottis was entirely destroyed, an exceptional occurrence. In one or two others there were ulcers on it, usually at the edge and toward the side. Thickening of the arytenoid cartilages was almost universal. In all the whole upper orifice of the larynx was thickened, so as to narrow greatly the aperture. In four cases the uvula

was entirely eaten away; in one it was partially destroyed, and in three it was thickened and enlarged. In five the pharynx was extensively ulcerated. In one tubercles were observed on the tongue. In the Lazaretto at Funchal, visited in 1881, there were four males and four females with throat implications, the general features being almost identical with those observed in the lazarinos of Seville.

Carcinoma of the Larynx.

Dr. H. A. Johnson, of Chicago (*New York Med. Journ.*, Sept. 24, 1887, p. 349), reports five cases, all males, more than forty-four years of age. In three the disease occupied the right side. In but one was there a history of cancer in the family. In one only the disease seemed to be secondary as an extension of external cancer. In one only was there evidence of infection of the lymphatics from the larynx. In one only any trouble, some hemorrhage. In none was there marked pain. In three life was prolonged, apparently three, five, and eight months, respectively, by tracheotomy.

The Use of the Finger in dislodging an Impacted Body in the Larynx.

Dr. J. Ford Thompson, of Washington, had occasion to perform tracheotomy to remove a cockle-bur impacted in the larynx of a lad of sixteen (*Journ. Amer. Med. Assoc.*, Oct. 1, 1887, p. 432), and failing to detect and grasp the body with tracheal forceps, he inserted an index finger into the larynx, and with this additional aid was able to dislodge the body, push it upward and extract it through the mouth.

DERMATOLOGY.

UNDER THE CHARGE OF

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AND

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Salt in Dermal Hygiene and Therapeutics.

Much that is interesting, as well as instructive, is to be found in Dr. Piffard's paper (*Journal of Cutaneous and Genito-urinary Diseases*, November, 1887) on salt in cutaneous hygiene and medication. Baths of five per cent. solution were found as a cleansing agent fully equal, and probably superior, to the usual soap and water bath. "It removed the bodily odors and exuviæ from the skin as readily as soap did, and far more thoroughly. Further, the axillæ and other hairy parts remained sweet and clean, and free from odor for a longer period than would have been the case after the most thorough

use of soap." Additionally to these properties, the skin has a soft and supple feel, more marked and more pleasant than the effects of any other form of bath. Therapeutically, the writer has found in acute moist eczema that a one-half per cent. bath is, for cleansing purposes, equal to soap and water, and without the usual aggravating effect of the latter. In subacute eczema, psoriasis, furunculosis, and similar diseases, the five per cent. bath proved a source of comfort to the patient, and possessed therapeutic properties as well.

The white salt obtained from the natural brine wells in the interior is preferred; it is purer and less expensive than sea salt, dissolves more readily, and the bath is free from the disagreeable scum present when the latter is used.

Cocaine in Skin Diseases.

Lustgarten (*Wiener med. Wochenschrift*, No. 12, 1887) states that where the epidermis is intact cocaine applied to the skin is not absorbed, but where the horny layer is thin or absent it acts. A two per cent. solution used several times daily allays the itching in acute and subacute eczema, being especially valuable in eczema of the anus and genital regions of both sexes. In the form of ointment he employs oleate of cocaine 6 grains to 15 grains; lanolin 4½ drachms; olive oil ½ drachm; followed by the use of a dusting powder. In pruritus ani suppositories may be made containing ¾ of a grain of oleate of cocaine. The author cautions against the toxic effects of cocaine, three cases of this kind having been encountered when only ¾ of a grain had been used.

On the Advantages of a Compound Salicylated Plaster.

Klotz (*New York Medical Journal*, September 17, 1887), in pursuance of a practice suggested by Prof. Pick, has for the past several years used with great advantage a salicylated soap plaster. After experimental trials of several formulæ the following proved the most practical: Emplastri diachyli simplic. emplastri saponati, āā 40 parts, petrolati, 15 parts, acid. salicylici, 5 parts. The addition of the petroleum ointment was made to render the plaster softer and more pliable. It unfortunately lacks marked adhesive qualities and requires, therefore, to be kept in place with a bandage. The plaster is inexpensive, one ounce spreading about one square foot. It acts as an antiseptic, forms an efficient protective covering to diseased skin, preventing crust formation; on a dry surface acting similarly, but in many respects more efficiently, to a rubber bandage, keeping the parts soft and pliable. The plaster finds its widest application in eczema, being useful in every form of this disease except the most acute stages. It acts admirably in fissured eczema of the fingers, in eczema of the forearm and legs; in ulcer of the legs, after healthy granulation has been excited, and, in fact, in granulating wounds resulting from any cause as burns, dermatitis, caustics, etc. The plaster is changed at intervals of one or several days according to the necessities of the case.

A New Treatment for Obstinately Recurring Eczema.

In the *British Medical Journal* of July 8, 1887, Crocker states his belief that many of the obstinately recurring cases of eczema are due to a vasomotor

neurosis, and that in the management of such cases he has good results from counter-irritation over the vasomotor centres. For this purpose mustard plasters, or mustard leaves, were employed. In no case did eczema develop upon the site of the plaster. The position of the counter-irritation varied, depending upon the part affected; behind the ears for the face, on the nape of the neck for face and forearms, over the lumbar enlargement for the genitalia and legs, and over the large sciatic nerve on the hip when but the one leg is affected. In many instances marked benefit followed, especially as regards the itching; and in some cases judicious repetition of the counter-irritation brought about permanent relief.

Treatment of Psoriasis with Iodide of Potassium.

Haslund (*Vierteljs. f. Derm. u. Syph.*, 3te Heft, 1887) is of the opinion that in the treatment of psoriasis iodide of potassium, given in increasing doses and for a long time, is quite equal, if not superior, to arsenic. He begins with a tablespoonful dose four times a day of a solution of one to twenty parts (dose twelve grains). The amount is increased every third day until the patient is taking one hundred and fifty grains daily. The strength is then increased by thirty grains every third day. When the stronger solutions are being used the doses may be given five or six times a day, freely diluted. About six hundred grains a day is the average amount administered, although as much as seven hundred and fifty grains a day have been given. The author reports fifty cases treated by this method; forty were cured, four relieved, and six remained uninfluenced by the remedy.

The average duration of treatment was seven weeks, improvement usually manifesting itself during the fourth or fifth week, after which the cure generally takes place rapidly. In most cases the large dosage was well tolerated, though at the beginning, and while the larger quantities were being taken, iodism, as shown by derangement of the stomach, diarrhœa, coryza and headache, was encountered, disappearing on a reduction of the amount of the drug. Most of the patients increased in weight and improved in general health under the treatment; the appetite remained good and the bowels were unaffected. The drug apparently exerted no effect on the general glandular system, testes, ovaries or mammary glands. The rapidity of the pulse was always increased under large doses, the rate generally reaching one hundred during the first two weeks and then gradually mounting to one hundred and thirty or forty. In nearly all instances increased flow of urine was noted. In a few cases salivation and transitory albuminuria, and in one instance, after large doses, dangerous heart failure, were observed.

Phlyctænosis Aggregata.

G. Behrend (*Berlin. klin. Wochenschrift*, August 15, 1887) presents a case (of which he has seen seven examples) of an undescribed disease of the skin, which he designates "phlyctænosis aggregata." The eruption is characterized by groups of vesicles, the size of a pin-head, and sometimes situated so closely that they coalesce. The vesicles are preceded by an intense redness of the skin, and are accompanied with violent itching, so that they are in-

variably scratched, and the patient deprived of sleep. Groups of small, quite flat blood-crusts, followed by pigment spots are observed. Recurrences of the eruption occur without cessation on various regions of the body, the disease pursuing its course in this manner until the skin has taken on a deep dark-brown coloration. In cases of this kind, where the disease has lasted for a long period, there exist groups of vesicles seated upon a dark pigmented skin and blood-crusts, rounded, striated in form. The author states that the picture is a striking one, and that it only resembles two diseases, namely, herpes and vesicular eczema. Arsenic has been found an absolutely sure remedy; after the patient has taken it for two or three days, the eruption and itching disappear completely, but return as soon as the remedy is discontinued, and this is the usual behavior of the disease. Out of the seven cases only one positive cure had been observed. [The disease has points in common with vesicular dermatitis herpetiformis, and it is not improbable that the diseases are the same, but they differ in the fact that Behrend's disease is in all cases quickly amenable to arsenic, which is not the case in dermatitis herpetiformis.—EDS.]

SOME OBSERVATIONS UPON THE THERAPY OF LEPROSY.

Based upon the parasitic view of the disease, UNNA (*Journal of Cutaneous and Genito-urinary Diseases*, October, 1887) has been employing such remedial applications as chrysarobin, pyrogallic acid, resorcin, and ichthyol, for the destruction of the cutaneous lesions, and with encouraging results. The following formulæ are thus recommended, exercising due care, of course, that toxic effects from absorption do not occur: ℞.—Chrysarobin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts. ℞.—Ac. pyrogallici, ichthyol. āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts. In women and children, and in others in whom the skin is delicate: ℞.—Resorcin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts; or, ℞.—Ichthyol, 10 parts; ac. salicylici, 2 parts; ointment, 100 parts. The following compound ointment, containing oxide of zinc, is one of the mildest: ℞.—Chrysarobin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ungt. zinci oxidi, vaseline, āā 50 parts. The oldest lepromata are treated more energetically by means of strong (30 to 50 per cent.) salicylic acid plaster-mulls.

From the prolonged use of the above ointments the writer has observed: "1. A rapid disappearance of those fresh lesions of the skin and hypoderm, which are accompanied by rise of temperature, and resemble urticaria nodosum. This is important, since, from the remains of these nodes, which disappear also spontaneously, though slowly, subsequently indolent lepra nodes are developed. 2. A speedy improvement in the circulation and a disappearance of the swelling of those bluish-red portions of skin which are simply enlarged and deformed, and, though filled with bacilli, do not present any circumscribed nodes. 3. A slow diminution in the size of true collections of lepra nodes, especially noticeable in the smaller and younger ones, less noticeable in very old, almost encapsulated lepromata. 4. A very noticeable improvement in the general condition of the patient, especially in regard to the appetite, muscular weakness, nervous depression, irritability, anæmia, etc."

As the author rightly stated, the weak point in this method of treatment is

that involved internal organs are practically uninfluenced, and he suggests, along with the local application, the internal administration of such remedies as chaulmoogra oil, strychnine, salicylate of sodium, and ichthyol.

OBSTETRICS.

UNDER THE CHARGE OF

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The Treatment of Uterine Atony by Iodoform Gauze Tampons.

Dührssen, assistant in Gusserow's Clinic in Berlin, reports in the *Centralblatt für Gynäkologie*, No. 35, 1887, two cases of uterine atony, with persistent hemorrhage, one following the rapid extraction of a child born in breech presentation, the other caused by weakness of the uterine muscle, in which, after manual extraction of the placenta, all efforts to check hemorrhage failed until the uterine cavity was tamponed with 20 per cent. iodoform gauze, in strips. Rapid recovery, without fever, followed. Dührssen advises, in persistent hemorrhage from uterine atony: (1) the emptying of the patient's bladder; (2) a hypodermatic injection of ergotin: (3) uterine massage; (4) hot or ice-cold irrigation with $\frac{3}{10}$ per cent. of salicylic acid solution; (5) tamponing with iodoform gauze. This procedure is not difficult, can be promptly and efficiently carried out, is painless, and antiseptic.

The Separation, in Point of Time, of Turning and Extraction.

Dohrn, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band xiv., Heft 1, considers the danger to fœtal life of transverse positions and partial escape of liquor amnii to be overrated when the mother is recumbent, and in competent care. Of 903 transverse presentations 23 fœtal deaths resulted from premature loss of liquor amnii, and these after intervals of several hours. Unless uterine rupture threatened, he would perform version when the os uteri was sufficiently dilated to admit the hand, and not before. He believes, however, that the fœtal life is less endangered by spontaneous expulsion after version than by extraction.

This opinion is based upon his study of 842 cases in which spontaneous breech presentation occurred, with fœtal mortality of 49 per cent., and 5592 cases in which version and extraction were performed, fœtal mortality of 57 per cent. The reason for this difference lies in the fact that when version and extraction are performed the fœtus is often born in a position and after a rotation different from that which the natural mechanism would have employed, in spontaneous evolution of breech presentation. When the operator only assists the expulsion of the fœtus, the coaptation of the fœtus to the parturient canal is natural, and in its results more successful than operative delivery.

Dohrn concludes that (1) version should only be performed when the os is fully dilated, except in strenuous need; (2) extraction should be performed only for a definite indication; the interests of mother and child are best secured by spontaneous expulsion of the fœtus. He illustrates his second point by 152 cases of version and extraction, fœtal mortality 22; in 29 cases after version the expulsion of the fœtus was left to nature, birth occurred in from one-fourth to five-fourths hour, mortality none.

A Case of Primitive Face Presentation.

Olivier reports, in the *Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 8, 1887, the case of a primipara, with normal pelvis, in whom palpation and vaginal examination demonstrated a face presentation before labor began. Schatz's manœuvre for altering the position of the head was tried without result. The rotation of the chin anteriorly was tardy, and the right hand of the operator was carried deeply into the pelvis behind the chin, it was then turned transversely, and the left blade of Tarnier's forceps was carried posteriorly and to the left; the right blade was then introduced and the forceps locked. Traction of twenty-five minutes' duration sufficed to rotate the chin beneath the symphysis. The child was resuscitated, but lived only an hour. The head of the infant was very large, and dolichocephalic.

It was found that the child's father had been born in face presentation, and that his skull, in adult life, was markedly dolichocephalic. This type had been so pronounced in his infant life that it outweighed the malformation caused by the abnormal presentation and birth, and Olivier suggests hereditary dolichocephaly as a probable cause of primitive face presentation in this case.

Basiotripsy.

It is not strange that the revival and improvement of the Cæsarean section should bring to the front the advocates of craniotomy, or basiotripsy, as the French style it. In the *Archives de Tocologie* of August 30, 1887, Pinard is reported, in a clinical lecture, in which he presented a primipara upon whom he had performed this operation, the indication being a contracted pelvis (conjugata vera 8 centimetres, or 3.12 inches), and shoulder presentation. The instrument employed was Tarnier's basiotribe, which was used after version had been performed. The efforts at extraction had killed the child before basiotripsy was undertaken.

The point of interest in Pinard's lecture is his statement of the results of this operation. Including himself, he reports the statistics of 7 operators, in as many different maternities. The greatest number of cases is his own; and in these cases and the others, 49 in all, he reports a maternal mortality of nil! 100 per cent. of recoveries is certainly a most remarkable claim for any serious procedure. Pinard compares Sänger's operation unfavorably with basiotripsy, but when we remember that not only the life of the mother, but also that of the fœtus should be saved by the modified Cæsarean section, his comparison loses much of its force. It is not too much to say that in the near future the success of the modified Cæsarean section will equal that of ovariotomy, and the saving of two lives by this procedure renders it immeasurably superior to any form of craniotomy.

The Infection of Puerperal Wounds.

Bumm, privat docent in Würzburg, reviews the literature of the subject in the *Centralblatt für Bacteriologie und Parasitenkunde*, Band II., No. 12, especially the recent articles of Gusserow (*Arch. f. Gyn.*, 1887, xxv. p. 169) and Winckel (*Verh. der deutschen Gesellschaft für Gyn.*, I. Congress, p. 78). Gusserow reports numerous cases of erysipelas occurring in puerperal women in whom septic infection did not occur. In ten other cases erysipelas took its rise from septic processes already established in the genitalia, the circumstances pointing to a causal relation between the septic wounds and the erysipelas. Gusserow extended his investigations to experiments upon animals, in which he injected the streptococcus of erysipelas into the serous cavities of rabbits, without result. He concluded that erysipelas does not produce sepsis or puerperal fever.

Winckel came to quite different conclusions, regarding the virus of erysipelas as one of the most active of puerperal poisons (The American Journal of the Medical Sciences, October, 1887, p. 604).

From the standpoint of the bacteriologist, Bumm considers the real question at issue to be, whether we have in erysipelas and puerperal fever two different varieties of streptococci, one of which always attacks the superficial lymphatics, producing erysipelas, while the other produces invariably suppuration, or whether the two streptococci are identical, producing different effects as the mode and extent of their inoculation vary. Neither Gusserow nor Winckel has settled this point. Morphologically and in their behavior in cultures, the streptococci of pus and of erysipelas are identical. Doléris, Krause, Rosenbach, Passet, Hoffa, Biondi, de Simone, Metschanikoff, Hajek, von Eiselsberg, and von Noorden have not been able by experiments upon animals to demonstrate invariable and positive differences between them. Regarding rabbits, both streptococci cause in them typical erysipelas; but different animals behave so differently toward the same germ, that results obtained by such experiments are not conclusive in the case of man. In the absence of a species more closely allied to man, we must await the developments of our knowledge from human pathology. The most recent bacteriological studies make a separation of the two germs very improbable, the connecting link in the effects which they produce being those forms of infection beginning as erysipelas and ending in suppuration.

Bumm adduces the case of a puerperal woman, whose nipples were excoriated, who was attacked on the sixth day after confinement by erysipelas in the right breast, which spread to the clavicle and axilla, without suppuration. The streptococci of erysipelas were found in the lymphatics in this case. On the eighth day, while the erysipelas just described was in full progress, the left breast was attacked by inflammation, which went on to suppuration. The pus which was formed in the cellular spaces of the connective tissue of the gland, contained chain bacteria, which could not be distinguished by sight from those of the opposite breast, and which produced erysipelas in rabbits. Bumm concludes that there are frequent illustrations of the relationship between erysipelas and puerperal fever in obstetric practice, and that for all practical purposes the obstetrician should consider them identical, and act upon this belief.

Puerperal Neuritis.

Möbius, in the *Münchener medicinische Wochenschrift*, No. 9, 1887, compares this affection to toxic paralyses. The terminal filaments of the median or ulnar nerves, or of both, are affected in both their motor and sensory portions. The disease often attacks both the hands, very frequently the right, probably because it is more constantly used. The affection begins during the puerperium, or a week afterward, develops suddenly, sometimes after violent pain, and endures for varying periods. Recovery is the rule; recovery with impaired innervation the exception. The result is influenced by the severity or mildness of the puerperal diseases commonly found.

In regard to localization, Möbius reports one case of paralysis of muscles of the shoulder; another of implication of the brachial plexus. Paralysis of the lower extremities following parturition is the direct result of inflammatory processes in the connective tissue of the pelvis. Puerperal myelitis bears the same relation to puerperal neuritis that saturnine encephalopathy does to the ordinary paralysis of the muscles of the arm from lead poisoning.

A Case of Puerperal Hemiplegia

Sloan reported, at a meeting of the Glasgow Obstetrical Society, the case of a puerperal patient in whom hemiplegia began the fifth day after confinement, commencing with defective articulation, absence of convulsions, albuminuria or cardiac disease, complete unconsciousness, and a temperature not above 100° F. The treatment was by cardiac tonics and ammonia. Recovery ensued in twenty-five days. The diagnosis was embolism of the anterior branch of the left cerebral artery, founded on the patient's early age, thirty; the incompleteness of the hemorrhage; the gradual mode of onset; incompleteness of the paralysis and absence of convulsions and coma; together with the sluggish circulation and readily coagulable condition of the blood.—*Edinburgh Medical Journal*, September, 1887.

Extrauterine Pregnancy; Operation; Recovery.

Rowan, of Melbourne, reports the case of a woman, aged thirty, pregnant the third time, who was brought to him with a history of severe paroxymal abdominal pain, hemorrhage from the vagina, impaired general health, and the presence of an abdominal tumor. A diagnosis of pelvic hæmatocele had been made. The tumor had increased until it reached the umbilicus; the fœtus had been outlined, and the fœtal heart and placental souffle had been heard. About two months before coming to the reporter the fœtus had died. On examination the tumor was found to fill the left iliac and hypogastric regions, and the left side of the pelvis completely; the uterus could be felt on the right side of the tumor, with its cervix still soft and patulous.

Laparotomy was performed under methylene. The amniotic fluid was removed by a trocar and canula, the cyst freely opened, and a fully developed dead fœtus, greatly decomposed, was removed. The cyst was extirpated, with the placenta, bleeding points tied with silk, and hot carbolized solution, 1 to 200, used for irrigation. A glass drainage tube was then inserted to the bottom of Douglas's cul-de-sac, and the wound closed. The cyst cavity was

subsequently irrigated as suppuration occurred during recovery, which was complete in about six weeks.

The operator stated that in a second case he would introduce a drainage tube from below, into Douglas's pouch.—*Australian Med. Journal*, No. 7, 1887.

Puerperal Relaxation of the Pelvic Ligaments.

Dr. Driver, of Cambridge, Massachusetts, in an article in the *Boston Medical and Surgical Journal* of September 15, 1887, concludes, from his observation of 300 cases of parturition, that—

(1) The presence of relaxation depends very much upon the strength of the bony and ligamentous structures of the skeleton—that is, it is more apt to occur in the woman of poor physique.

(2) That age does not determine its presence, at least the degree of it. The age of observed cases ranges from fifteen to forty-four.

(3) It is not constant, but a degree of it is natural at time of labor, and may exist during pregnancy, and even in the early months.

(4) There may be great motion and no lameness or impairment of walking power.

(5) There may be a general degree of motion and great lameness.

(6) Lameness depends upon pathological conditions of the junctions, pubic and sacro-iliac.

(7) Pain at the sacro-iliac junction of one side proves that on that side is the pivotal motion of the ilium on the sacrum. It may occur in non-puerperal females, in sterile and virgins.

(8) Patients may recover from a most serious condition of lameness without treatment.

(9) The most careful treatment, with all the aids that wealth can bring, may not restore firmness to the pelvis.

(10) Many a case of lingering disability after confinement may have been due to this cause, and it is well, when you cannot find out "what is the matter," to test the condition of the pelvic ligaments.

(11) A small degree of relaxation on separation may facilitate delivery, and may be a factor that saves the use of forceps.

The treatment most successful was an abdominal bandage of twilled cotton, five inches wide, with padded perineal bands one inch wide. In some cases cold bathing and massage were added.

Contracted Pelvis; Cæsarean Section (Sänger); Recovery.

Lebedew, of St. Petersburg, reports the case of a primipara with contracted pelvis, the conjugata vera of which was 8 centimetres (3⅛ inches), in whom, thirty hours after labor pains began, the section was made. The relaxed and atonic uterus was compressed by the elastic ligature; its cavity was cleansed with 2 per cent. carbolic acid solution. The uterine muscle and peritoneum were carefully sutured. Secondary hemorrhage from the uterus was obstinate, and uterine atony persisted. Recovery was complicated by embolic pneumonia. The stitches were removed on the twelfth day; mother and child made a good recovery.—*Centralblatt für Gynäkologie*, No. 41, 1887.

Extrauterine Pregnancy.

Werth has recently published a book on *The Anatomy and Operative Treatment of Extrauterine Pregnancy*, in which he considers tubal pregnancy most frequent and interesting. He regards intraligamentous tubal pregnancy as frequent, and cites sixteen cases. Ovarian pregnancy he considers possible, but infrequent; this must be diagnosed by the existence of a distinct sac, which does not communicate with the tube. The participation of other abdominal organs in the formation of the fœtal sac, he thinks, occurs rarely. Tubo-abdominal pregnancy can be said to exist only when both peritoneum and tubal mucosa contribute to the placenta. The survival of the fœtus after opening of the ovarian or tubal fœtal sac is only possible when the circulation of the fœtal appendages is not impaired. Rupture of the fœtal sac is most frequent in sacs springing free from the broad ligament, in both tubal and ovarian pregnancies. In cases of embryos found free in the abdomen, examination will generally disclose the tube or some other point in the uterine appendages as the starting-point of fœtal growth. Perished extrauterine embryos are less likely to macerate than intrauterine, because there is much less amniotic fluid in extra- than in intrauterine pregnancy. Werth reports five cases operated upon, with four recoveries.

In one case intratubal abortion occurred, without rupture of the tube, the blood escaping through the fimbriated extremity, forming an intra-abdominal hæmatoma; the patient recovered.

In treatment the child's life must be disregarded. The fœtus and appendages must be considered as a malignant growth, and removed.

In intraligamentous pregnancy operations should be undertaken with great caution during an advancing pregnancy. When a mature fœtus is living in intraligamentous pregnancy laparotomy is contraindicated.

In the treatment of the placenta, when left behind, Werth had good results from benzoate of sodium, which readily permeates necrotic connective tissue, preventing putrefaction and hardening of the placental tissues.—*Deutsche medicinische Wochenschrift*, October 20, 1887.

Tonic Uterine Contraction, without Complete Retraction.

At a meeting of the London Obstetrical Society, on October 5, 1887, Dr. J. Matthews Duncan read a paper on this subject, in which he called attention to the occurrence of a rigid, spastic condition of the uterus, especially just after delivery, without complete retraction, and while the uterus has no contents opposing complete retraction or closing. In this state the hard uterus has a globose cavity. He more particularly called attention to the occurrence of hemorrhage from the placental site while the uterus is in this state of firm spastic contraction with incomplete retraction, and mentioned cases. He regarded this hitherto unknown or unrecognized condition as probably affording an explanation of the well-known difference of opinion among obstetric authorities, some asserting the occasional occurrence of hemorrhage after delivery from a hard contracted uterus, some denying it. A similar condition, he believed, occurs very rarely in the unimpregnated uterus. —*Lancet*, October 15, 1887.

GYNECOLOGY.

UNDER THE CHARGE OF

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OF NEW YORK.

ON THE VARIOUS MODES OF TREATMENT OF THE WORST CASES OF UTERINE FLEXION.

ROUTH (*Ibid.*) pleads for a more prolonged and intelligent use of pessaries before resorting to operative treatment, which he does not regard as entirely successful. His conclusions are as follows: No pessaries should be used as long as evidences of inflammation are present; they should be so fitted as not to press upon the fundus uteri or at the point of flexion. They should be tried for not less than a year before the curability of the case is questioned. Whenever there is obstruction of the canal at the point of flexion an intra-uterine stem is necessary. It should be worn six or eight months. An India rubber steel-spring pessary may be employed if the uterus is firmly adherent; if the adhesions cannot be stretched, oöphorrhaphy may afford relief. Alexander's operation, or hysterorrhaphy, should not be performed if the uterus is considerably enlarged and prolapsed, if there are firm and extensive adhesions, or if there is general relaxation of the ligaments.

METHODS OF CLEANSING THE PERITONEUM.

TAIT (*Brit. Gyn. Journal*, Aug. 1887), in describing his method of irrigating the peritoneal cavity, refers to a primary and secondary cleansing, the former being employed at the time of the operation, especially when colloid material has escaped into the abdomen, the latter being accomplished by means of a drainage tube. Primary irrigation is effected by siphoning warm water into the abdomen through a trocar of peculiar shape, the stream being directed to different points so as to wash away any foreign material.

In removing blood-clots a more rapid stream is passed through a larger tube introduced into the pelvis. The intestines and peritoneum should at the same time be gently cleansed by means of the finger, or a small sponge. The temperature of the water should be between 103° and 107°; water having a temperature of 120° is invaluable as a hemostatic. Sponges should not be introduced into the cavity if this can be avoided, especially if peritonitis is present, since they not only carry infection, but their use still further irritates the inflamed peritoneum. Oozing from bleeding points can usually be checked by packing the pelvis with sponges, and leaving these *in situ* until after the sutures have been introduced. The fluid that remains after washing out the cavity can be best removed by sucking it up through a drainage tube, by means of an apparatus similar in principle to a common breast-pump.

Irrigation of the peritoneal cavity through a drainage tube is only useful during the first seventy or eighty hours after operation, because the general cavity is early shut off by adhesions. For draining away serum Tait employs

a tube closed at the lower end, really an ordinary test-tube with lateral perforations; it is changed in forty-eight hours for a shorter one of smaller calibre. Mr. Tait summarizes his views on the use of drainage tubes as follows:

1. A tube should be used when there is oozing during the operation, or when secondary hemorrhage is anticipated.

2. It should not be removed until the hemorrhage has ceased.

3. Drainage should always be employed in cases of ruptured cyst, suppuration, and persistent ascites.

4. As the patient advances in years there is more need to resort to drainage.

5. The simplest method of cleansing the peritoneal cavity secondarily is to introduce the water through a drainage-tube. As the intestine offers a natural channel for drainage, aperients should be given as early as the second or third day if there are evidences of peritonitis.

The Diagnosis and Separation of Peritoneal Adhesions around the Displaced Uterus and Ovaries.

Schultz (*Zeitschrift f. Geburtsh. u. Gynäkol.*, Bd. xiv., Heft 1) introduces a paper on this subject, with the statement that in most cases of fixation of the retroflexed uterus, the displacement occurs first, the organ being imprisoned in its abnormal position by a subsequent attack of peritonitis. The adhesions can usually be felt by the finger, introduced into the rectum or vagina. In obscure cases the uterine canal may be dilated, and the finger may be introduced to the fundus so as to steady the organ, while the hand over the abdomen is enabled to draw the fundus forward, and thus to estimate the strength of the cicatricial bands. A sound may be substituted for the finger within the rectum, rectal palpation being practised simultaneously. Anesthesia should be employed if the exact amount of mobility cannot be ascertained without it. The bladder and rectum having been emptied, the patient is placed in the lithotomy position, the examiner introduces his fore and middle fingers into the rectum, and presses them against the retroflexed fundus, at the same time resting the elbow of the corresponding arm upon his knee. If the fundus can be elevated as high as the promontory, it can then be grasped by the fingers of the other hand placed upon the abdomen. The site and extensibility of the adhesions can now be discovered; if these are slight, they will give way under the combined force of the two hands, while if they are broader, they can be separated from the uterus by pressure of the external finger-tips.

Imprisoned ovaries may be freed by pressure made through the rectum; but when they are adherent to the posterior surface of the broad ligament, reposition is impossible. The finger within the rectum explores the surface of the prolapsed organ for a free edge, or an interspace between the ovary and its adhesions. If the latter can be found, the finger-tip is gently, but firmly, bored into it, when the adhesions will frequently give way. It may be necessary to repeat the operation before the ovary is completely freed. It must be effected very slowly and cautiously, the operator being especially careful not to make traction or pressure entirely upon the organ itself. The author adds that in several cases in which he practised this method of reposition he never observed any unfavorable symptoms following the operation. Absolute rest

and ice applications are recommended immediately afterward. The uterus and appendages are kept in their normal position by means of a suitable pessary. The dangers of the operation are not great, provided that a careful diagnosis has been made previously in the manner indicated.

Puncture with a Fine Aspirating-needle in the Treatment of Perimetritis.

Hervot (*Arch. de Tocologie*, July 30, 1887) describes this operation as follows: After administering an antiseptic vaginal injection, and emptying the patient's bladder, the operator selects a fine needle, about the size of Dieulafoy's No. 2, but twice as long, and plunges it through the fornix vaginæ into the most prominent part of the mass of exudation. After the fluid has ceased to flow freely, the puncture is repeated at another point. Suppuration will not follow if the needle is perfectly aseptic. The usual precautions are taken to avoid peritonitis. After reporting in detail a number of successful cases, the author concludes by affirming that aspiration with a capillary needle is always harmless, provided that strict antisepsis is observed, and that it favors the resolution of the exudation, and shortens in a marked manner the duration of the inflammatory process.

Functional Affections of the Uterus resulting from the Morphine-habit.

Lutaud (*Ibid.*), as the result of careful observations made in twenty two cases, during a period of three years, arrives at the following conclusions:

1. Chronic morphinism causes a diminution, or complete suppression, of the menstrual flow.

2. Hence, in cases of menorrhagia due to cancer or fibroid tumor of the uterus, morphine possesses a distinct hemostatic action. The author injects from two and a half to ten grains (!) at a time in cases of carcinoma, obtaining from such large doses not only a complete relief of pain, but a diminution of the hemorrhage and actual prolongation of life.

The Diagnosis of Commencing Epithelioma of the Cervix.

Stratz (*Zeitschrift für Geburtshülfe u. Gynäkologie*, Bd. xiii. Heft 1), referring to the good results that have followed operations performed for the cure of cancer of the uterus, states positively: 1. That carcinoma is curable; 2. That the earlier one operates the more probable is the cure. Unfortunately, either the disease is not recognized sufficiently early, or palliative treatment is not adopted until it is too late for a radical operation. The symptoms of commencing epithelioma are rarely so severe as to compel the patient to consult a specialist, hence the family physician is the one who has the most frequent opportunities to observe the disease in its inception. His suspicions should be aroused whenever a woman complains of vague shooting pains, an increase in the menstrual flow, and especially of slight hemorrhage following coition. Since in the beginning a malignant growth cannot be distinguished from an extensive erosion, a piece of the cervix should be excised and examined microscopically. In general, the following peculiarities may be noted on gross inspection as characteristic of malignant disease: The

affected region is sharply separated from the healthy portion, and always occupies a different level. Epitheliomatous nodules are of a light yellow color, and on section they show small, shining, granular spots of a yellowish-white shade.

The Relations between the Uterine Mucosa and Diseases of the Adnexa.

Czempin (*Zeitschrift für Geburts. u. Gynäkologie*, Bd. xiii. Heft 2) endeavors in this paper to reverse the ordinary sequence, or to prove that under some circumstances inflammation may spread from the appendages to the uterine mucous membrane. The intimate relation between the endometrium and the lining of the tube is well known, but it is just as rational, he believes, to assume that an inflammatory process may spread backward as forward. The proof of this secondary inflammation of the endometrium is shown by the sudden occurrence of metrorrhagia in connection with chronic inflammation or tumors of the ovaries and tubes, recurrent exudative parametritis, or cicatricial nodules in the broad ligaments, such as form after removal of the appendages. A comparison of the symptoms observed in a series of cases showed that the patients complained of sudden, violent pains in the abdomen or back, followed in from three to eight days by hemorrhage, so severe as to lead the women to consult a physician. On examination, evidences of fresh inflammation of the ovaries, tubes, or parametric tissue were invariably found. Hemorrhage was generally profuse, and was always accompanied by severe pain. The endometrium was usually hypertrophied. The symptoms produced by cicatricial nodules remaining in the perimetric tissues after laparotomy are less severe, the pain being less marked than in acute inflammatory processes; still, it is sufficient to convince the patient that she has not been entirely cured by the operation. The hemorrhage under these circumstances recurs at irregular intervals, and is more profuse than the ordinary menstrual flow. The persistence of a pseudo-menstruation after removal of both tubes and ovaries is to be ascribed not to the "habit" of menstruation, but to the presence of exudations or indurations in the pelvic tissues, which cause congestion of the uterus, and hence hypertrophy of the endometrium. The sensitive nodules can often be felt in these cases. Hemorrhage from the uterus in connection with disease of the appendages may be explained in general by supposing either that the presence of chronic oöphoritis, pyosalpinx, or morbid growths of the appendages causes chronic congestion, and hence endometritis fungosa, just as in the case of uterine fibroids, or that acute or subacute inflammation of the appendages produces an acute hyperemia of the mucous membrane, which recurs continually by reason of the constant irritation of the diseased tubes and ovaries. The author, in concluding, acknowledges that a careful study of the endometrium in connection with various affections of the other pelvic organs is necessary before positive deductions can be made. [It must be confessed that the arguments advanced by the writer do not throw much light upon the question of sequence in coexisting disease of the uterus and its adnexa. The explanation of recurring hemorrhages after removal of both tubes and ovaries seems plausible, especially when considered in connection with the fact of persistent pain after laparotomy.]